- Document reference
- Goals addressed – *Goal(s) the action will address.*
- Status (new/continuation/amendment)
- Strategy category
- Priority – *Each action ranked in terms of overall importance (high, moderate or low). Priorities were based upon the following criteria: cost-benefit, hazard identification and profile, vulnerability and capability assessments and mitigation goals.*
- Geographic area the action is directed to
- How action will mitigate the hazard
- How action will reduce overall vulnerability
- Will action be cost effective - *Is a measure of how well the cost achieves the intended action.*
- Will action be environmentally sound – *Is a determination if technology exists within the financial means of the jurisdictions that can achieve an action.*
- Will action be technically feasible - *The actions has minimal or no harm to nature or the environment.*
- Funding
- Person or department responsible for implementation – *Person(s) or Department(s) responsible for implementing the action.*
- Projected duration (on-going/short-term and long-term) - *On-going actions are those that currently exist and should be continued. Short-term actions are those that can be implemented within existing resources and should be accomplished within a time frame of six (6) months to two (2) years. Long-term actions will take additional resources or authorities and should be organized to begin implementation within a time frame of 3-5 years.*
- Implementations start date
- Implementation completion date
- Benchmarks/indicators of progress - *Explains what needs to be accomplishment to meet this action.*

ACTION 1: ***The City Should Modify The City Flood Damage Prevention Ordinance To Require That The Lowest Floor (Including Basement) Be Elevated To A Level At Least One Foot Above The Base Flood Elevation, Or To A More Restrictive Level.***

Background: The City' Flood Damage Prevention Ordinance is based on FEMA's minimum criteria. For new construction or substantial improvements to existing development, the current ordinance requires that the lowest floor (including basement) be elevated ~~no~~ lower than at/or above the base flood elevation." (This requirement applies to residential, nonresidential, and manufactured homes.)

Hazard Targeted:	Flood
Document Reference, If applicable:	Section 12-122(1)(2)(3) of City Flood Damage Prevention Ordinance
Goals Addressed:	Goal 1
New, Continuation, Amendment:	Amendment to Ordinance Completed on October 23, 2006 (Effective on January 5, 2007)
Strategy Categories:	Prevention and Property Protection
Priority:	High
Geographic Area:	Flood Hazard Area
How the Action Will Mitigate the Hazard:	Would require that new and existing development (for which substantial improvements are made) be elevated to a higher level, thus decreasing the likelihood of future flood damage.
How the Action Will Reduce Overall Vulnerability:	Would reduce vulnerability of future new development. Would also reduce vulnerability of existing development (for which substantial improvements are made).
Will the Action Be Cost Effective?	Yes
Will Action Be Environmentally Sound?	Yes
Will the Action Be Technically Feasible?	Yes
Funding:	Not applicable
Person or Department Responsible for Implementation:	Development Services staff with other members of the Technical Review Committee are responsible for enforcing.
Projected Duration:	Permanent, on-going.
Implementation Start Date:	January 5, 2007 (begin process for amending ordinance)
Implementation Completion Date:	January 5, 2007 (complete ordinance amendment)
Benchmarks & Indicators of Progress (Re: Effectiveness):	Amendments to Ordinance: Completed on October 23, 2006 (effective on January 5, 2007), when the City adopted standards requiring all new construction to be placed a minimum of two feet above the Base Flood Elevation. The Technical Review Committee monitors compliance with this standard. The number of existing buildings that are on parcels in the recently defined flood hazard area is reported in Table 14. However, because of changes in topography, many of the buildings on those parcels are not actually located at an elevation that violates the two foot standard.

ACTION 2: ***The City Should Modify The City Zoning Ordinance To Add A Conservation District (CD) Zone. (Currently Underway.) The New CD Zone Should Be Applied In The Recently Annexed Areas And As Cases Arise. When The State Delivers New Flood Maps, The City Should Apply The New CD Zone To All Designated Flood Hazard Areas.***

Background: The City of Fayetteville Zoning Ordinance has been amended to establish a Conservation District (CD) zone. The City will then apply the CD Zone to properties as rezoning cases arise. When new flood maps are delivered, the City will consider applying the CD Zone to properties mapped as being in a flood hazard area.

Hazard Targeted:	Flood
Document Reference, If applicable:	Section 30-31 and Section 30-102 of City Zoning Ordinance
Goals Addressed:	Goal 1 and Goal 2
New, Continuation, Amendment:	Completed new ordinance provision February 23, 2004. Application of CD Zone will be a continuation to areas in the Special Flood Hazard Area.
Strategy Categories:	Prevention, Natural Resource Protection
Priority:	High
Geographic Area:	Flood Hazard Area
How the Action Will Mitigate the Hazard:	Will only allow a limited number of uses to be built on vacant land that is in a flood hazard area.
How Action Will Reduce Overall Vulnerability:	Will reduce vulnerability of future new development.
Will the Action Be Cost Effective?	Yes
Will Action Be Environmentally Sound?	Yes
Will the Action Be Technically Feasible?	Yes
Funding:	General Fund
Person/ Department Responsible for Implementation:	The Planning and Zoning Division Staff within the Development Services Department are responsible for recommending when and where this classification will be used.
Projected Duration:	Long-term (to apply CD Zone)
Implementation Start Date:	The Planning Commission began discussion of an amendment creating new CD Zone January 6, 2004.
Implementation Completion Date:	The City Council approved the new CD Zone category June 28, 2004.
Benchmarks & Indicators of Progress (Re: Effectiveness):	Addition of New CD Zone: Completed on February 23, 2004, when City Council added it to Zoning Ordinance. Application of New CD Zone: Ensure use of the zone classification is recommended on land where appropriate characteristics exist. The Planning and Zoning Division along with the Technical Review Committee monitors the type of development that occurs on land zoned CD.

ACTION 3: ***When The State Delivers New Flood Maps, The City Should Identify Existing Buildings That Have Their Lowest Floor Below The 100-Year Base Flood Elevation And Develop An Acquisition/Relocation Program For These Buildings.***

Background: The City of Fayetteville does not currently have an acquisition/relocation program for buildings in flood hazard areas. In the late 1990's, the City used Community Development Funds for an acquisition/relocation program for buildings located near the County landfill. Many years ago, the City used Federal urban renewal funds for acquiring and relocating buildings in the Old Wilmington Road area; many of these buildings were in a flood hazard area.

Hazard Targeted:	Flood
Document Reference, If applicable:	Not applicable
Goals Addressed:	Goal 1
New, Continuation, Amendment:	Deletion of this action.
Strategy Categories:	Property Protection
Priority:	High
Geographic Area:	Flood Hazard Area
How the Action Will Mitigate the Hazard:	Would protect existing properties by removing them from hazardous locations.
How the Action Will Reduce Overall Vulnerability:	Would reduce vulnerability of existing development.
Will the Action Be Cost Effective?	Yes
Will Action Be Environmentally Sound?	Yes
Will the Action Be Technically Feasible?	Yes
Funding:	General Fund, HUD Community Development Block Grants, Hazard Mitigation grants.
Person or Department Responsible for Implementation:	City Engineering Dept. survey crews could possibly determine if existing buildings have their lowest floor below the 100-year Base flood elevation. City GIS Analyst will tag these buildings in GIS. The Community Development Staff could develop and implement an acquisition/relocation program.
Projected Duration:	Long-term
Implementation Start Date:	Within 1 year of receiving new flood maps from the State.
Implementation Completion Date:	Within 5 years of start date
Benchmarks & Indicators of Progress (Re: Effectiveness):	The City of Fayetteville recommends that this action item be deleted as it has been determined that City resources will not be used to mitigate the risk of private property owners by purchasing and relocating their facilities. The Staff will determine the number if buildings in need of acquisition/relocation. The Staff will use GIS to track the number of buildings acquired/relocated per year.

ACTION 4: ***The Stormwater Division Of The City Engineering And Maintenance Department Should Expand The Existing Stream Debris Cleaning Program.***

Background: The Stormwater Division has an existing stream debris-cleaning program. This program currently focuses on responding to complaints. (The volume of complaints has decreased recently.) The program should be expanded so that it is based on a regular maintenance schedule for all streams in the City.

Hazard Targeted:	Flood
Document Reference, If applicable:	Chapter 23 of City Code
Goals Addressed:	Goal 1 and Goal 2
New, Continuation, Amendment:	Amendment (expansion) of existing program
Strategy Categories:	Prevention and Natural Resource Protection
Priority:	High
Geographic Area:	Flood Hazard Area and along other streams
How the Action Will Mitigate the Hazard:	A regular maintenance schedule for clearing debris from streams should increase flow and reduce flooding
How the Action Will Reduce Overall Vulnerability:	Would reduce vulnerability of existing development located adjacent to debris.
Will the Action Be Cost Effective?	Yes
Will Action Be Environmentally Sound?	Yes
Will the Action Be Technically Feasible?	Yes
Funding:	Stormwater Fund
Person or Department Responsible for Implementation:	Manager of Stormwater Program.
Projected Duration:	Long-term
Implementation Start Date:	January 1, 2005
Implementation Completion Date:	December 31, 2009
Benchmarks & Indicators of Progress (Re: Effectiveness):	Stormwater Program Staff will continue to carefully monitor and prioritize maintenance activities within the City. The City no longer takes responsibility for the maintenance of water courses outside the City limits. As a result, City resources can be applied more effectively to locations needing attention in the City.

ACTION 5: ***The City Will Maintain/Improve Existing City Requirements That Limit The Amount Of Impervious Surfaces And That Encourage The Use Of Pervious Surfaces.***

Background: The City's Water Supply Ordinance imposes limits on the amount of impervious surface that may be built in a new development project. However, the Watershed Ordinance only applies in the parts of the City that are designated as a protected area or a critical area. The City should maintain this requirement.

The City Council is now considering an amendment to the City's Zoning Ordinance that would require the establishment of a buffer/landscape planting area. As currently proposed, the buffer area would be required in four zones (C1P, C3, M1, and M2) when new non-residential projects are built adjacent to residentially zoned properties. (In the buffer area, the amount of impervious surface would be limited. For example, the area could not be paved or used for vehicle parking and it would have to be planted in grass.)

Hazard Targeted:	Flood
Document Reference, If applicable:	Chapter 30 (Zoning Ordinance), Article IX (Landscape Standards), Section 30-282.1 (proposed new section)
Goals Addressed:	Goal 1
New, Continuation, Amendment:	New buffer/landscape planting area requirements in Zoning Ordinance: Completed on July 24, 2006. (These requirements have been included in the new Unified Development Ordinance, which was adopted on December 13, 2010. Upon implementation, the UDO will replace the existing Zoning Ordinance.) New Stormwater Ordinance: Completed on May 26, 2009 (effective on July 1, 2009).
Strategy Categories:	Prevention and Natural Resource Protection
Priority:	High
Geographic Area:	Entire City
How the Action Will Mitigate the Hazard:	Will limit the amount of impervious surface, which should prevent runoff and flooding.
How the Action Will Reduce Overall Vulnerability:	Should reduce vulnerability of both existing and future development.
Will the Action Be Cost Effective?	Yes
Will Action Be Environmentally Sound?	Yes
Will the Action Be Technically Feasible?	Yes
Funding:	Not relevant
Person or Department Responsible for Implementation:	The Planning Staff has started the ordinance revision process. Technical Review Committee staff will be responsible for enforcing.
Projected Duration:	Permanent - ongoing
Implementation Start Date:	Began on November 18, 2003
Implementation Completion Date:	June 30, 2004
Benchmarks & Indicators of Progress (Re: Effectiveness):	Monitor the performance of the Technical Review Committee (TRC) in applying the buffer/landscape code. On May 26, 2009, the City adopted a new Stormwater Ordinance (effective on July 1, 2009) which includes provisions for minimizing disturbance of buffer areas adjacent to streams, minimizing impervious surfaces and promoting alternative methods and materials for parking surfaces. Also, a new Unified Development Ordinance was adopted on December 13, 2010 (effective on July 1, 2011) which requires submittal of a fully articulated site plan for all buildings of 2,500 feet or greater. This will extend the influence of the Stormwater Ordinance.

ACTION 6: ***The City Should Make The City Flood Damage Prevention Ordinance As Similar As Possible To The County Flood Damage Prevention Ordinance.***

Background: Both the City of Fayetteville and Cumberland County has a Flood Damage Prevention Ordinance. These two documents are now largely the same.

Hazard Targeted:	Flood
Document Reference, If applicable:	Chapter 12 of City Code (Flood Damage Prevention Ordinance)
Goals Addressed:	Goal 1
New, Continuation, Amendment:	Adoption of City Ordinance That Is Similar to County Ordinance: Completed on October 23, 2006 (effective January 5, 2007)
Strategy Categories:	Prevention
Priority:	Medium
Geographic Area:	Flood Hazard Area
How the Action Will Mitigate the Hazard:	Not applicable
How the Action Will Reduce Overall Vulnerability:	Not applicable
Will the Action Be Cost Effective?	Yes
Will Action Be Environmentally Sound?	Yes
Will the Action Be Technically Feasible?	Yes
Funding:	Not relevant
Person or Department Responsible for Implementation:	Planning Staff
Projected Duration:	Long term Policy Change
Implementation Start Date:	January 1, 2005
Implementation Completion Date:	January 5, 2007
Benchmarks & Indicators of Progress (Re: Effectiveness):	The differences in the ordinances have been reconciled. The City and County have adopted essentially the same standards. Each jurisdiction prefers to maintain and enforce its own ordinance.

ACTION 7: ***The City Should Investigate The Possibility Of Participating In The Community Rating System (CRS) Program.***

Background: The benefit of participating in the CRS program is that residents would receive a reduction in their flood insurance premiums. Some time ago, the City of Fayetteville Inspections Department Staff considered participating in the CRS program. The Inspections Staff decided not to participate, because the allocation of City resources (i.e., manpower) was not expected to justify the expected benefits. However, the City now has GIS technology. Also, the City has now prepared this draft Hazard Mitigation Plan. Based on these factors, it might now be appropriate for the City to participate in the CRS program.

Hazard Targeted:	Flood
Document Reference, If applicable:	Not applicable
Goals Addressed:	Goal 1, Goal 2, and Goal 3
New, Continuation, Amendment:	Deferred. No work has been done on this action since it was first proposed as a ~~"~~New initiative."
Strategy Categories:	Prevention, Property Protection, Natural Resource Protection, Public Information
Priority:	Low
Geographic Area:	Flood Hazard Area and Entire City
How the Action Will Mitigate the Hazard:	Participating in the CRS program would obligate the City to go through many of the same steps used in this Plan.
How the Action Will Reduce Overall Vulnerability:	Participating in the CRS program may allow residents to be eligible for a reduction in flood insurance premiums.
Will the Action Be Cost Effective?	Yes
Will Action Be Environmentally Sound?	Yes
Will the Action Be Technically Feasible?	Yes
Funding:	General Fund
Person or Department Responsible for Implementation:	Development Services Department
Projected Duration:	Long-term
Implementation Start Date:	January 1, 2005
Implementation Completion Date:	Ongoing investigation
Benchmarks & Indicators of Progress (Re: Effectiveness):	In the next five years the City will investigate the steps and resources necessary to participate in the program. At that point a decision will be made whether or not to participate. At beginning of investigation, City will determine number of properties that would qualify for reduction in flood insurance. If program is started, City will track number of properties that do qualify for reduction.

ACTION 8: ***In Order To Promote More Evacuation Routes, The City Should Consider Amending The City Subdivision Ordinance To Require Additional Access Roads For Developments Located Near Potential Hazard-Prone Areas.***

Background: Section 25-31(4a) of the Fayetteville Subdivision Ordinance currently requires that ~~e~~ach lot shall front on a public street or highway." It can be assumed that this requirement means that a proposed subdivision must have at least one access road. The City's subdivision ordinance does not require that a proposed subdivision have additional access roads. Single-entry neighborhoods can be dangerous if the path of exit is blocked by floodwaters or wildfires. Providing additional means of access or breakaway gates would lessen this risk.

Hazard Targeted:	All hazards (Flooding, Hurricanes, Tornadoes, Thunderstorms, Winter Storms, Wildfires, Drought, Extreme Heat and Earthquakes, especially flood and wildfire)
Document Reference, If applicable:	Section 25-31(4) a of Fayetteville Subdivision Ordinance
Goals Addressed:	Goal 1
New, Continuation, Amendment:	Deferred, pending development of a new Unified Development Ordinance. New UDO: Completed December 13, 2010 (effective July 1, 2011).
Strategy Categories:	Prevention, Property Protection
Priority:	Medium
Geographic Area:	Entire City of Fayetteville
How the Action Will Mitigate the Hazard:	Will provide additional means of access into single-entry neighborhoods, in order to prevent residents from being trapped in a hazardous area during a wildfire, flood or any other disaster.
How the Action Will Reduce Overall Vulnerability:	Vulnerability of existing single-entry neighborhoods would not be reduced, unless new access streets are added. Vulnerability of future neighborhoods would be reduced, because they would not be allowed to have single entry.
Will the Action Be Cost Effective?	Yes
Will Action Be Environmentally Sound?	Yes
Will the Action Be Technically Feasible?	Yes
Funding:	Not applicable
Person or Department Responsible for Implementation:	Planning Department initiate ordinance amendment and enforcement will be by the Inspections Department
Projected Duration:	Long-term policy change
Implementation Start Date:	July 1, 2005
Implementation Completion Date:	The goal is to adopt and implement the UDO in this fiscal year.
Benchmarks & Indicators of Progress (Re: Effectiveness):	A new Unified Development Ordinance, containing new subdivision standards for external connectivity and development points, was adopted on December 13, 2010, with an effective date of July 1, 2011. Determine number of existing single entry neighborhoods in the City. Determine number of housing units in these neighborhoods. A map has been generated showing locations in the community with less than appropriate access points.

ACTION 9: ***The City Should Encourage Electrical Utilities Other Than PWC To Expand Their Tree Pruning Programs. (The PWC Tree-Pruning Program Is Adequate.)***

Background: The City's Public Works Commission (PWC) provides electrical service to most of the City. In those areas, PWC has an adequate tree-pruning program. However, other utilities provide electrical service in certain areas. Those other utilities need to be encouraged to expand their tree pruning programs.

Hazard Targeted:	Winter storms and high wind events (hurricanes, tornadoes, thunderstorms)
Document Reference, If applicable:	
Goals Addressed:	Goal 1 and Goal 2
New, Continuation, Amendment:	Deferred. No work has been done on this action since it was first proposed as an ~~–~~Expansion of current tree pruning programs offered by utilities other than PWC."
Strategy Categories:	Prevention and Property Protection
Priority:	Medium
Geographic Area:	Areas of the City served by electrical utilities other than PWC
How the Action Will Mitigate the Hazard:	Pruning tree limbs hanging in street right-of-ways will prevent trees from damaging utility wires during winter storms or high wind events
How the Action Will Reduce Overall Vulnerability:	Will help prevent power outages when hazards occur.
Will the Action Be Cost Effective?	Yes
Will Action Be Environmentally Sound?	Yes-but care should be taken to trim no more than necessary to preserve shade and beauty that a full tree offers.
Will the Action Be Technically Feasible?	Yes
Funding:	Rate payers of electrical utilities other than PWC
Person or Department Responsible for Implementation:	The City will initiate contacts with officials of electrical utilities other than PWC. It will be up to the other utilities to implement.
Projected Duration:	Long-term
Implementation Start Date:	January 1, 2005
Implementation Completion Date:	June 30, 2005
Benchmarks & Indicators of Progress (Re: Effectiveness):	Staff will contact all electric utilities operating in the City to discuss a strategy. One possible strategy is to request that all electric utilities operating in the City report on their general maintenance activities annually.

ACTION 10: ***The City Should Enhance Multilingual Information Brochures About Hazards And Distribute These Brochures In Neighborhoods With High Concentrations Of Foreign-Born Populations.***

Background: The County Emergency Management Coordinator's Office already has multilingual brochures available in some languages. Efforts should be made to determine if brochures are needed in other languages. The City will identify neighborhoods, other concentration areas, and organizations with foreign-born populations, and distribute the appropriate language brochures.

Hazard Targeted:	All hazards (Flooding, Hurricanes, Tornadoes, Thunderstorms, Winter Storms, Wildfires, Drought, Extreme Heat and Earthquakes)
Document Reference, If applicable:	Not applicable
Goals Addressed:	Goal 3
New, Continuation, Amendment:	Continuation/expansion of existing outreach efforts
Strategy Categories:	Public Information
Priority:	Medium
Geographic Area:	Entire City
How the Action Will Mitigate the Hazard:	Will provide multilingual information about hazards to residents, business owners, potential property buyers, and visitors. This information should help them protect themselves and their property.
How the Action Will Reduce Overall Vulnerability:	Should reduce risk for foreign-born people who live in hazard-prone areas.
Will the Action Be Cost Effective?	Yes
Will Action Be Environmentally Sound?	Yes
Will the Action Be Technically Feasible?	Yes
Funding:	General Fund
Person or Department Responsible for Implementation:	Human Relations Department with possible collaboration with the Community Development Department.
Projected Duration:	Long-term
Implementation Start Date:	January 1, 2005
Implementation Completion Date:	Ongoing
Benchmarks & Indicators of Progress (Re: Effectiveness):	City staff will evaluate the steps and resources necessary to carry out this program and present their findings to the administration and Council as appropriate. Possible steps include: Identify neighborhoods, other concentration areas, and organizations of foreign-born populations. Track the number of brochures distributed.

ACTION 11: ***The City Will Maintain The Special GIS Database That Was Developed For The City's Plan. The Database Could Then Be Used To Assess Damages From Future Hazardous Events That Might Occur In The City And To Update The Plan.***

Background: The City Planning Department developed a special GIS database for the City's Plan. The special GIS database was based on normal tax records (name of owner, value, etc), plus two new items: a building count for each tax record and a land use code for each tax record. The Planning Staff added data regarding critical facilities (name, type, and number) and housing units (type, number of units, name of apartment complex). This database was joined to another database prepared by the Fayetteville Area Metropolitan Planning Organization (FAMPO) that included the number of employees per tax record.

Hazard Targeted:	All hazards (Flooding, Hurricanes, Tornadoes, Thunderstorms, Winter Storms, Wildfires, Drought, Extreme Heat and Earthquakes)
Document Reference, If applicable:	Not applicable
Goals Addressed:	Goal 1, Goal 2, Goal 3
New, Continuation, Amendment:	Maintaining original database (developed for original Plan): Deferred. Maintaining database developed for update to Plan: Continuation (needs to be updated continuously).
Strategy Categories:	Prevention, Property Protection, Natural Resource Protection, Public Information
Priority:	High
Geographic Area:	Entire City of Fayetteville and Flood Hazard Areas
How the Action Will Mitigate the Hazard:	Will help identify parcels, buildings, and critical facilities in hazardous locations
How the Action Will Reduce Overall Vulnerability:	Will help make existing development safer. Will help prevent new development in vulnerable locations.
Will the Action Be Cost Effective?	Yet to be determined, although it appears it would be if proper procedures and responsibilities are determined and implemented.
Will Action Be Environmentally Sound?	Yes
Will the Action Be Technically Feasible?	Yes
Funding:	General Fund
Person or Department Responsible for Implementation:	Development Services Department or Information Technology Department GIS Analyst
Projected Duration:	Long-term
Implementation Start Date:	January 1, 2005
Implementation Completion Date:	Yet to be determined.
Benchmarks & Indicators of Progress (Re: Effectiveness):	The City needs to devise a strategy to maintain the subject database across several different departments. City staff will evaluate the procedures and resources necessary to carry out this program and present their findings to the administration and Council as appropriate. Assuming the database is maintained, this might involve: Determine the number of records in database. Track the number of records updated annually. Track the number of records added through annexation.

ACTION 12: ***The City Should Ask The County To Develop A Geographic Identifier For Individual Buildings. This Would Allow GIS Users To Link Tabular Tax Information About Buildings To The Individual Buildings.***

Background: In preparing the special GIS database for the Plan, the Planning Staff learned that the County Tax Records currently lack a geographic identifier for individual buildings. Although there is tabular tax information about individual buildings, it cannot be linked to the actual building at this time in GIS, due to the lack of a geographic identifier. A geographic identifier is needed, especially on parcels with more than one building.

Hazard Targeted:	All hazards (Flooding, Hurricanes, Tornadoes, Thunderstorms, Winter Storms, Wildfires, Drought, Extreme Heat and Earthquakes)
Document Reference, If applicable:	Not applicable
Goals Addressed:	Goal 1, Goal 2, Goal 3
New, Continuation, Amendment:	Re: Original Action Item #12 of "Adding a geographic identifier (and keeping it current)": Deferred. (No work has been done on this item, which was originally considered a "new initiative.") However, the City would like to modify this item to call for a **new initiative**, the development and maintenance of a new building footprint layer.
Strategy Categories:	Prevention, Property Protection, Natural Resource Protection, Public Information
Priority:	High
Geographic Area:	All of Cumberland County
How the Action Will Mitigate the Hazard:	Will help identify individual buildings and individual critical facilities in hazardous locations.
How the Action Will Reduce Overall Vulnerability:	Will help make existing development safer. Will help prevent new development in vulnerable locations.
Will the Action Be Cost Effective?	While the full evaluation has not been conducted, we believe the answer will be yes.
Will Action Be Environmentally Sound?	Yes
Will the Action Be Technically Feasible?	Yes
Funding:	City and/or County General Fund
Person or Department Responsible for Implementation:	City Planning Department or City GIS Analyst could initiate request to County. County Tax Department staff would develop the geographic identifier.
Projected Duration:	Long-term
Implementation Start Date:	January 1, 2005
Implementation Completion Date:	December 31, 2009
Benchmarks & Indicators of Progress (Re: Effectiveness):	The City would like to modify this Action Item #12 to call for the development and maintenance of a new building footprint layer, not just the development of a geographic identifier for each building. According to Hope Morgan, the state will finally be completing a new building footprint layer for Cumberland County by the end of 2010. This new building footprint layer, maintained locally, could serve as the basis for the County Tax Department and/or the County Addressing Department to develop the proposed geographic identifier. That would enable the desired link between tax and other information in GIS. Procedures will need to be established to ascertain that geographic identifiers for new buildings developed are assigned routinely to the database.

ACTION 13: ***The City Consider Options To Reduce The Risk Of Flooding For City-Owned Buildings That Are Located In Flood Hazard Areas.***

Background: The Vulnerability Assessment for the City of Fayetteville shows that a significant percentage of public buildings and/or critical facilities are located in the defined flood hazard area defined in this Plan. The City owns some of these public buildings and/or critical facilities. For example, the City owns a building on Alexander Street that serves as the computer center for the traffic signal synchronization project. This City-owned building was flooded in the flood of 9/15/89. The City could consider options for reducing the risk such as flood proofing and building elevation.

Hazard Targeted:	Flood
Document Reference, If applicable:	Not applicable
Goals Addressed:	Goal 1, Goal 2
New, Continuation, Amendment:	Re: —The implementation of options to reduce the risk of flooding for City-owned buildings": Deferred. (No work has been done on this item, which was originally considered a —new initiative.")
Strategy Categories:	Property Protection
Priority:	High
Geographic Area:	Flood Hazard Areas
How the Action Will Mitigate the Hazard:	Would protect buildings by modifying them to withstand a flood.
How the Action Will Reduce Overall Vulnerability:	Will help make existing buildings safer.
Will the Action Be Cost Effective?	Yes
Will Action Be Environmentally Sound?	Yes
Will the Action Be Technically Feasible?	Yes
Funding:	General Fund, City Capital Project Fund
Person or Department Responsible for Implementation:	City Planning Department would initiate action. City Staff preparing the Capital Improvements Plan (CIP)would include this action in the Plan.
Projected Duration:	Long-term
Implementation Start Date:	January 1, 2005
Implementation Completion Date:	December 31, 2009
Benchmarks & Indicators of Progress (Re: Effectiveness):	City staff will evaluate the procedures and resources necessary to carry out this program and present their findings to the administration and Council as appropriate. Depending on the findings, a prioritized action list could be established. The evaluation might involve the following steps: Verify number of City-owned buildings that are in flood hazard areas. Determine number of buildings that need to have a reduction in flood risk. Track number of buildings annually that actually receive a reduction in flood risk.

MONITORING IMPLEMENTATION

The preceding Mitigation Strategies and Actions Section of this report described the implementation process for each City of Fayetteville mitigation action and status of implementation as part of this Update. For each City action, the following implementation information was provided: the person or department responsible for implementation, the projected duration of implementation, the implementation start date, the implementation completion date, and the possible funding sources. Incorporation of the Hazard Mitigation Plan into planning documents would be handled by the Planning staff, ensuring that the goals, objectives and strategies of these documents would be consistent with the Hazard Mitigation Plan and would not increase hazard vulnerability or decrease hazard capability of the City of Fayetteville. The Fayetteville Planning Commission would receive these planning documents for review and approval (This Commission is part of the Cumberland County Hazard Mitigation Steering Committee). These review comments are forwarded to the Fayetteville City Council for consideration prior to their review and adoption of such documents. The public will have an opportunity to provide input at public hearings held by the Fayetteville Planning Commission and Fayetteville City Council.

It is recommended that the City of Fayetteville Departments that participated in developing the Plan and this Update continue to be responsible for monitoring the implementation of the actions. The Departments should meet regularly to monitor implementation (semi-annually is recommended as an effective, more efficient cycle). Prior to each meeting, the Planning staff will ask the individuals and Departments responsible for implementing each action to prepare a brief progress report on implementation. At the meetings, each City mitigation action will be assessed to determine if the actions are being implemented within the time assigned frame. The Planning and Zoning Division will prepare an implementation report, and submit it to the City Administration.

EVALUATING, AND REPORTING PROGRESS

In addition to monitoring the implementation of each City action, it is important to regularly evaluate the effectiveness of the Plan. It is also important to update the vulnerability and capability assessments, to continue public involvement, and to prepare a ~~p~~lan maintenance report".

It is recommended that the City Planning and Zoning Division be responsible for reporting the effectiveness of the individual actions on an annual basis, beginning in January 2006. In assessing the effectiveness of the individual actions, the Planning and Zoning Division will use the benchmarks and indicators of progress for each Action that were listed in the Mitigation Goals, Strategies and Actions Section of this document. Similarly, the vulnerability and capability assessments will be reviewed by the Planning and Zoning Division on an annual basis.

In theory, updating the vulnerability assessment should show whether the City's level of vulnerability is increasing, decreasing, or remaining stable. However, information from the update will not be directly comparable with the original vulnerability assessment, due to two reasons. First, due to annexation, the City boundaries used in the update are different from the City boundaries used in the original vulnerability assessment. This means that the total number of buildings in the City is higher in this Update is done. Secondly, assuming that the new flood maps will be more accurate than the current maps, the boundary of the defined flood hazard area to be used in the update is different from the boundary used in the original vulnerability assessment.

The next update of the vulnerability assessment will be done after the City receives the new building footprints from the State. Currently, the City has no up-to-date building footprint information available digitally, so all buildings on a parcel where any portion of the parcel is within the 100-year floodplain are

treated as if they are within the flood hazard area, even though many buildings counted this way actually are not.

The City should continue to solicit and encourage public involvement in the hazard mitigation planning process. There are several ways to continue public involvement. The Fayetteville Planning Commission should require an annual report from the Planning and Zoning Division on the status of the Plan at a public hearing. Fayetteville's Hazard Mitigation Plan will be posted on the City's website that will allow the public to email feedback. A copy of the Plan will be made available at various public sites, such as libraries, recreation centers, and/or neighborhood resource centers. Comments and suggestions will be solicited at these public sites. Fayetteville should consider adding questions about natural hazards to the City's bi-annual citizen survey form.

It is recommended that the Planning and Zoning Division be responsible for preparing an Annual Hazard Mitigation Plan Maintenance Report. This report should be based on the information discussed above beginning in February 2006. This report should be submitted to the City Manager. The report should include: whether actions are being implemented on schedule, whether indicators and benchmarks of progress are being met, and whether the level of vulnerability in the City has improved, remained stable, or gotten worse. The report should also include recommendations for changes, deletions, or additions to the actions in the Plan. These recommendations will reflect changing conditions in the City, as detected by the updated capability assessment.

The information in the Annual Plan Maintenance Report will be used by the City Manager to set priorities for the City's annual budget process. The information will also be used by the City Manager in making recommendations to City Council for revisions and updates to the Plan.

REVISION AND UPDATES

The City of Fayetteville will update the Plan every five years or as needed. The following procedures will be followed in the updating and revision process. The Planning and Zoning Division will prepare and submit the Fayetteville Annual Hazard Mitigation Plan Maintenance Report to the City Manager. The City Manager will review the report and then present the findings and recommendations for revisions and/or updates to the City Council. The City Council will decide whether or not to authorize the preparation of an updated or revised plan. Upon authorization from the City Council the Planning and Zoning Division will prepare the updated Plan, submit it to the North Carolina Department of Environmental Management and FEMA for review and approval. It will then be presented to the City Council for final approval and a copy forwarded the Cumberland County Emergency Services Department as the City of Fayetteville Hazard Mitigation Plan Update and part of the Cumberland County Multi-Jurisdictional Hazard Mitigation Plan Update.

The final step in preparing the City of Fayetteville's Hazard Mitigation Plan Update is approval by the City Council. The Fayetteville City Council will hold a public hearing on the Plan Update allowing additional opportunity for public input, make changes if necessary, and pass a resolution of adoption.

Resolution

WHEREAS, the City of Fayetteville desires to remain eligible for the State and Federal disaster relief funds in the event of a declared disaster in the City; and

WHEREAS, the Fayetteville City Council recognizes the value of having a Plan in place for identifying, prioritizing, and mitigating potential and real hazards that could affect the City of Fayetteville; and

WHEREAS, the Fayetteville Planning and Zoning Division Staff has prepared a City of Fayetteville Hazard Mitigation Plan as part of the Cumberland County Multi-Jurisdictional Hazard Mitigation Plan Update, and has revised the Plan as suggested by the North Carolina Division of Emergency Management after its submittal to all appropriate government entities for review and comments; and

WHEREAS, the North Carolina Division of Emergency Management has endorsed the City of Fayetteville Hazard Mitigation Plan as part of the Cumberland County Multi-Jurisdictional Hazard Mitigation Plan Update; and

NOW, THEREFORE, BE IT RESOLVED by the Fayetteville City Council that it adopts the City of Fayetteville Hazard Mitigation Plan as part of the Cumberland County Multi-Jurisdictional Hazard Mitigation Plan Update; and

BE IT FURTHER RESOLVED that the Fayetteville City Council resolves to annually review the City of Fayetteville Hazard Mitigation Plan and make revisions to all sections regarding the City of Fayetteville as part of the Cumberland County Multi-Jurisdictional Hazard Mitigation Plan Update when new data and information becomes available, as mitigation measures are achieved, and as mitigation strategies evolve; and

FURTHER, that the City may update and revise the City of Fayetteville Hazard Mitigation Plan as part of the Cumberland County Multi-Jurisdictional Hazard Mitigation Plan Update as it relates to the City of Fayetteville but does not affect any other jurisdiction. If any revision, update or amendment involves another jurisdiction, the updates and revisions must be approved by the governing body of the affected jurisdiction. Copies of any revision, amendment or update to the Plan by the City of Fayetteville must be kept on file with their Clerk and with the Cumberland County Emergency Services Department and added to the Cumberland County Multi-Jurisdictional Hazard Mitigation Plan Update; and

FURTHER, that administrative changes, wording corrections, and revisions to the hazard analysis, vulnerability assessment, or other such portions of the Cumberland County Multi-Jurisdictional Hazard Mitigation Plan Update, do not require additional action by the Fayetteville City Council.

Adopted 26th day of September, 2011

Attest:

Pamela Megill
City of Fayetteville, Clerk

Anthony Chavonne
Mayor, City of Fayetteville

VULNERABILITY ASSESSMENT

In preparing the vulnerability assessment, the Planning staff followed the tasks set forth in the State's guidebook. The vulnerability assessment for the City of Fayetteville included an examination of the following topics:

Description of GIS Database
Description of Critical Facilities and Public Buildings
Description of Hazardous Locations
Current and Future Vulnerability

Description of GIS Database

For the original plan, a special GIS database was developed for the vulnerability assessment of the City. A database of tax records was downloaded from the Cumberland County mainframe computer in January 2003. This database was a point file and it contained the normal tax data for each record, such as name of owner, value of property, etc. It also contained a special attribute needed for the plan (the number of buildings). Since the original plan was developed, the County Tax Department has added the attribute of number of buildings to the parcel shapefile that is made available to all users. Therefore, in preparing the GIS database for the update, the staff used a shapefile of county tax parcels, rather than a special download of data from the Cumberland County mainframe computer. The specific shapefile used was named, ~~"p~~arcels_52510." There were 134,003 records in this shapefile. This shapefile was a ~~"r~~egion" file, which means that when a parcel is split by a road or other feature, the various parts of the parcel are considered to be one entity. According to the parcel shapefile used in the update, there are 75,794 tax parcels located within the City of Fayetteville, as defined by the January 25, 2010 boundaries. As in the case of the original plan, in preparing the update, the City staff added additional information to the database, such as data regarding critical facilities (name, type, and number) and data regarding housing units (type, number of units in buildings, name of apartment complexes, etc.). The City staff also joined the parcels 52510 shapefile to a separate file that included the number of employees per parcel. The employment data was compiled by the Fayetteville Area Metropolitan Planning Organization (FAMPO) after the original plan was prepared. The staff also added special sources of data, such as the number of students enrolled in Cumberland County Schools located within the City, and the number of staff members assigned to each school within the City.

Description of Critical Facilities and Public Buildings

Critical facilities are essential to the health, safety, and viability of a community. These are the buildings, services, and utilities without which residents and businesses cannot survive for long, such as hospitals, police stations, fire stations, and sewage treatment facilities. Critical facilities may be publicly owned, nonprofit-owned, or even privately owned.

The City staff has identified a total of 285 critical facilities/public buildings within the City of Fayetteville, based on the boundaries of the City as of January 25, 2010. The location of some of these facilities is shown on **Map 10 - Fayetteville Critical Facilities Location**. The 285 critical facilities identified in this update may be compared to the 271 critical facilities mentioned in the original plan. The increase in the number of critical facilities can be explained primarily by the growth of the area of the City through annexation. Definitional changes also account for some of the differences. For example, in the original plan, day care centers were considered critical facilities (a subcategory of schools). However, in the update, day care centers were not identified as critical facilities.

The GIS database developed for this update contains information about each critical facility, such as the ownership, the type, the name, the parcel identification number, the number of buildings associated with the critical facility, the number of critical facilities associated with the tax record, the current replacement

value, the current value (the sum of building value and the extra feature value), the situs address, and the total number of people associated with the critical facility. Additional information about critical facilities is contained in Tables 11 and 13 and in Appendix B – Critical Facilities Ranking.

Description of Hazardous Locations

The hazardous locations within the City of Fayetteville are based on the established flood hazard areas. The flood hazard areas are along the Cape Fear River and along various streams that flow into the Cape Fear River. These areas were originally delineated on the paper Flood Insurance Rate Maps, prepared by FEMA. Later, these areas were converted to the Q3 digital maps. In 2007, the City received a new digital version of flood maps. These new digital maps are considered to be much more accurate than the Q3 maps, and the new digital maps have been used in this update.

Description of Geographic Planning Area

The vulnerability assessment was for the entire jurisdictional area of the City of Fayetteville (based on City of Fayetteville boundaries as of January 25, 2010). All of the hazards could impact the entire City, however special attention was devoted to flood hazard areas due to the frequency of flooding in the past. Flood hazard areas were defined using GIS. The new digital flood maps were used instead of the Q3 boundaries (which were used in the original plan). In the original plan, a 250 foot buffer was delineated outside of the Q3 boundaries of the 100-year flood zone. In the update, no such 250 foot buffer was delineated, because the new digital flood maps were considered to be more accurate. In the update, all parcels that intersected the 100 year flood zone boundary were considered to be in the flood area.

Current Conditions

Information compiled for the City of Fayetteville through GIS, tax records, existing studies, zoning and subdivision regulations, past records, and data from other Federal, State and local agencies shows vulnerable facilities and special populations. Tables 10, 11, 12, and 13 provide a summary of both current conditions and potential future conditions in the City of Fayetteville. Table 14 provides a simple summary of the total number of buildings in Fayetteville and the current vulnerability of buildings to flooding.

A total of 68,910 buildings have been identified as being within the City of Fayetteville, as of January 25, 2010. In the GIS shapefile, the number of buildings on the 75,794 tax parcels located in the City was actually 68,834. Thus, there is a discrepancy of 76 buildings. This discrepancy can be explained by two reasons. One, for the parcel where the Cross Creek Sewage Treatment Plant is located, no buildings were shown in the parcel shapefile for this parcel. To correct for this missing data, a total of 13 buildings from the original plan for this parcel were added to the parcel shapefile manually. Two, the 63 buildings in the category of Hazard Materials Facilities are being counted two times. These two reasons explain the discrepancy of 76 buildings, and they support the City staff‘s conclusion that there are 68,910 buildings in the City.

In the original plan, a total of 47,243 buildings were identified as being within the City of Fayetteville. The number of buildings has increased by 21,667 buildings (68,910 buildings in this update minus 47,243 buildings in the original plan). The increase in the number of buildings is due to two factors: the City has grown considerably through annexation, and new development has added to the number of buildings.

As shown in **Table 14 – Fayetteville Summary of Current Buildings Vulnerability**, out of the 68,910 buildings in the City, a total of 67,617 buildings are in the category of privately-owned, and 1,293 are in the category of publicly-owned. It has been estimated that 3,577 buildings in Fayetteville are located within the defined flood hazard area. These buildings make up 5.19 percent of all buildings in Fayetteville.

Tables 10 and 11 provide more details about the total number of buildings in Fayetteville. **Table 10 – Fayetteville Private Buildings Vulnerability Assessment** focuses on privately-owned buildings. **Table 11- Fayetteville Public Buildings & Critical Facilities Vulnerability Assessment** focuses on publicly-owned buildings, buildings associated with critical facilities, and infrastructure.

As shown in Table 10, the 67,617 privately-owned buildings in Fayetteville have a current value of over 8.6 billion dollars. It has been estimated that there are 223,483 people associated with these buildings. Most of these people either live in the residential buildings or they are employees in businesses,

As shown in Table 11, the 1,293 publicly-owned buildings in Fayetteville have a current value of over 1.6 billion dollars. It has been estimated that there are 54,581 people associated with these buildings. Most of these people are employees of businesses, students in schools, students living on campus at higher-education schools, or occupants of group quarters (such as nursing homes). Some of the publicly-owned buildings and critical facilities are shown in Map 10.

Table 11 also provides data about infrastructure in the City of Fayetteville. The current value of infrastructure is estimated at over 2.5 billion dollars. The total value of both publicly-owned buildings and infrastructure is over 4.1 billion dollars.

Table 11 also provides a summary of the value of all buildings (both public and private) and of all infrastructure in the City of Fayetteville. The total is over 12.7 billion dollars.

Tables 12 and 13 both pertain to the buildings that have been identified as being located in the defined flood hazard area. **Table 12 – Fayetteville Private Buildings Flood Vulnerability Assessment** provides information about the privately-owned buildings in the flood hazard area, while Table 13 provides information about the publicly-owned buildings and infrastructure in the flood hazard area.

As shown in Table 12, 3,205 privately-owned buildings have been identified in the flood hazard area. These buildings have an estimated current value of over 563 million dollars. Over 17,000 people are associated with these buildings. Most of these people are occupants of residential buildings and employees of businesses.

The City of Fayetteville has had 5 structures designated as repetitive loss structures. Four of these structures were residential while one was commercial. The ~~a~~as of date" for these structures was 12/31/03.

As shown in Table **13 – Fayetteville Public Buildings & Critical Facilities Flood Vulnerability Assessment**, 372 publicly-owned buildings have been identified in the flood hazard area as shown in **Map 11 – Fayetteville Buildings & Critical Facilities Within the Flood Prone Areas**. These buildings have an estimated current value of over 400 million dollars. Over 13,000 people are associated with these buildings. Most of these people are occupants or residential buildings, students living on-campus at higher education schools, and employees of businesses. Some of the publicly-owned buildings and critical facilities are shown in Map 11.

Table 13 also provides information about infrastructure within the City of Fayetteville that is located within a defined flood area. Over 200 million dollars worth of infrastructure is located within a flood hazard area.

Table 13 also gives a summary of the value of all buildings and infrastructure within a flood hazard area in Fayetteville. The total is over 1.2 billion dollars.

Table 14 provides a summary of the buildings in Fayetteville, in terms of the total number of buildings and the vulnerability of buildings in Fayetteville to flooding.

It should be noted that within the category of privately-owned buildings, industrial buildings tend to be the most vulnerable to flooding. For example, almost 14 percent of industrial buildings are located on a parcel that is intersected by a flood boundary.

Within the category of publicly-owned buildings, 100 percent of buildings associated with sewage treatment plants and water treatment plants are located on parcels that are intersected by a flood boundary. However, this should come as no surprise, because these types of facilities need to be located near a water body such as a lake or river.

It should be noted that over 32 percent of buildings associated with schools are located within a flood hazard area. This percentage is high because this includes the buildings on the Methodist University campus, Fayetteville State University campus, the Douglas Byrd High School/Middle School campus, and the Westover High School/Middle School campus. In each case, the campus is intersected by a flood hazard boundary from a nearby water body, causing all buildings on each campus to be tabulated as being in a flood hazard area. In reality, most buildings on each campus appear to be built on land that is high enough not to be in a flood hazard area.

Development Trends and Projections

Development trends that may impact hazard mitigation include the direction of growth, current zoning and future land use. The City is growing to the west, southwest, and north primarily through annexation. Factors in the City that may impact future development include the construction of the Outer Loop, utility extensions, and policies that promote infill development.

Fayetteville zoning districts include residential, office and professional, commercial, industrial, agricultural, and others. Residential districts can be classified into three density categories: low density (allows more than 2 but less than 6 units per acre), medium density (allows 6 or more but less than 15 units per acre), and high density (allows 15 or more units per acre). The individual zoning districts are shown on **Map 12-Fayetteville Zoning Map**.

Here is a summary of zoning district acreage in the City of Fayetteville:
The City‘s Conservation District (CD) makes up about 824 acres.

The City‘s Agricultural-residential zoning district (AR) makes up about 6,166 acres.

Here is a summary of residential zoning acreage data: Low density residential districts (PND, R10, R15) make up about 28,426 acres. Medium density residential districts (R6, R6MH, MHPD and R5A) make up about 10,048 acres. High density residential districts (R5) make up about 1,971 acres.

Here is a summary of nonresidential zoning acreage data: Office and professional districts (P1, P2, P3, P4) make up about 1,005 acres. Commercial districts (C1, C1P, C1A, C2, C2P, C2S, C3, and CU) make up about 6,870 acres. Manufacturing districts (M1 and M2) make up about 3,325 acres.

In addition, about 209 acres in the City are zoned as Mixed Use.

In addition, the City has one acre zoned in a Tower Overlay District (TOD).

The land in the City‘s Airport is unzoned; this includes around 1,088 acres.

It should be noted that the zoning acreage data presented above is based on the City‘s GIS zoning layer, which was last updated around August 1, 2010.

The proposed land use for the City of Fayetteville is shown on **Map 13 - Fayetteville Land Use Plan Map**. This map indicates the community's vision for the future use of land, as specified in the 2010 Land Use Plan, which was adopted in 1996. The 2010 Land Use Plan map classifies land in the City of Fayetteville (without Fort Bragg) as follows: 7,432 acres are classified as open space, recreation and environmental corridor,;103 acres as one acre lots; 399 acres as suburban density residential; 27,110 acres as low density residential; 9,551 acres as medium density residential; 406 acres as high density residential; 1,254 acres as office & institutional; 2,511 acres as governmental; 2,473 acres as industrial; 5,205 acres as commercial; 2,327 acres as downtown; and 1,025 acres as activity node. An additional 38 acres are classified as range and training; this land is located along the western side of McArthur Road and it is owned by Fort Bragg. An additional 40 acres are designated as "policy-directed" commercial or O&I categories. The City of Fayetteville created these special categories for an area along Hope Mills Road.

The "2030 Growth Vision Plan-Policies and Actions" document has also been adopted by the City of Fayetteville. This plan includes a 2030 Growth Strategy Map, but this map is highly generalized; it only has five categories. Most of the City of Fayetteville falls within the category of "Urban." Areas located in newly-annexed areas on the western side of the City are in the category of "Urban Fringe." Areas along streams are in the category of "Conservation Area."

Projections of future buildings, value, and people are shown in Tables 10, 11, 12, and 13.

As shown in Table 10, it is projected that by the year 2025, there might be almost 75,000 privately-owned buildings in Fayetteville. This represents an increase in round 7,000 buildings. This number was calculated by considering expected future development by land use type. Each land use type was given an assumed rate of growth into the future.

As shown in Table 11, it is projected that by the year 2025, there might be around 1,400 publicly-owned buildings in Fayetteville. This represents an increase of a little over 100 buildings. Some publicly-owned critical faciliteis are not expected to add any buildings, while others are expected to add buildings at a rate similar to the rate of expected private residential building growth.

As shown in Table 11, the total number of buildings is projected to be a little over 76,000 in the year 2025. This represents an increase of around 7,200 buildings.

As shown in Table 12, it is projected that by the year 2025, there will be a small amount of growth (150 buildings) in privately-owned buildings in flood hazard areas. According to staff members familiar with local development trends, around 10 buildings per year get built in flood hazard areas; 95 percent of these tend to be residential.

As shown in Table 13, no additional publicly-owned buildings or critical facilities are expected to be built in the flood hazard areas of the City by the year 2025.

Table 10 - Fayetteville Private Buildings Vulnerability Assessment

Type(s) Hazard: Hurricane, Drought, Thunderstorms, Severe Winter Storms, Tornadoes, Extreme Heat, Wildfires, and Earthquakes

Current Conditions				Potential Future Conditions (Projection Year 2025)		
Type of Development	**Number of Existing Private Buildings**	*** Current Value**	**Current Number of People**	**Projected Number of Private Buildings**	**Projected Value**	**Projected Number of People**
Single-Family Residential	54,652	$5,841,434,064	128,063	60,773	$6,495,674,679	142,406
Multi-Family Residential	7,847	$1,246,236,279	53,134	8,514	$1,352,166,363	57,650
Commercial	3,533	$1,255,652,351	33,668	3,780	$1,343,548,016	36,025
Industrial	575	$132,489,754	4,970	592	$136,464,447	5,119
Other	1,010	$137,550,454	3,648	1,040	$141,676,968	3,757
Subtotal-Buildings	**67,617**	**$ 8,613,362,902**	**223,483**	**74,699**	**$ 9,469,530,473**	**244,957**

*Values and building counts from Fayetteville GIS- January 2010. Current value data does not include any adjustments for the value of contents. The methodology used in preparing this data is described in Appendix C.

Table 11 - Fayetteville Public Buildings & Critical Facilities Vulnerability Assessment

Type(s) Hazard: Hurricane, Drought, Thunderstorms, Severe Winter Storms, Tornadoes, Extreme Heat, Wildfires, and Earthquakes

Current Conditions				Potential Future Conditions (Projection Year 2025)		
Type of Development	**Number of Existing Public Buildings & Critical Facilities**	*** Current Value**	**Current Number of People**	**Projected Number of Public Buildings**	**Projected Value**	**Projected Number of People**
Sewage Treatment	13	$4,104,703	39	13	$4,104,703	39
Water Treatment Plant	13	$8,970,101	15	13	$8,970,101	15
Hospital	39	$241,455,065	5,424	39	$241,455,065	5,424
School	337	$653,008,966	36,223	375	$726,145,970	40,280
Infrastructure (roads, bridges, drainage, dams, and etc.)	Water Lines 5,095,468‘ Sewer Lines 5,122,376‘ Streets 5,637,766‘ Bridges 80 Dams - 44	$458,592,120 $768,356,400 $1,065,537,774 $169,000,000 $43,600,000	N/A	Water Lines – 5,666,160‘ Sewer Lines – 5,696,082‘ Streets 6,269,196‘ Bridges - 89 Dams - 49	$509,954,400 $854,412,300 $1,184,878,044 $187,928,000 $48,483,200	N/A
Police Station	1	$10,176,558	372	2	$15,264,837	558
Fire Station	16	$9,988,557	92	17	$12,438,557	96
Hazard Materials Facilities	63	$18,678,435	322	63	$18,678,435	322
Government offices	196	$409,282,962	6,012	218	$455,122,654	6,685
Emergency Shelter	4	$4,302,935	0	4	$4,302,935	0
Public Housing	209	$ 60,356,904	1,470	209	$60,356,904	1,470
Private Bldg – Critical	93	$74,888,352	3,428	103	$83,275,847	3,812
Non-Profit Bldg – Critical	20	$14,922,829	227	22	$16,594,186	252
Public Bldg. not Critical	289	$121,270,450	957	321	$134,852,740	1,064
Subtotal-Buildings	**1,293**	**$1,631,406,817**	**54,681**	**1,399**	**$1,781,562,934**	**60,017**
Subtotal-Infrastructure		**$2,505,088,294**			**$2,785,655,944**	
TOTAL:	**68,910**	**$12,749,856,013**	**278,064**	**76,098**	**$14,036,749,351**	**304,974**

* Values and building counts from Fayetteville GIS - January 2010. Current value data does not include any adjustments for the value of contents. The methodology used in preparing this data is described in Appendix C.

Table 12 - Fayetteville Private Buildings Flood Vulnerability Assessment

Type(s) Hazard: Flood

Current Conditions				Potential Future Conditions (Projection Year 2025)		
Type of Development	**Number of Existing Private Buildings**	*** Current Value**	**Current Number of People**	**Projected Number of Private Buildings**	**Projected Value**	**Projected Number of People**6,353
Single-Family Residential	2,217	$318,890,925	6,050	2,328	$334,857,047	6,353
Multi-Family Residential	633	$186,487,098	9,369	664	$195,619,957	9,828
Commercial	194	$41,599,046	1,301	198	$42,456,758	1,328
Industrial	80	$15,702,215	480	82	$16,094,770	492
Other	81	$797,207	99	83	$816,891	101
Subtotal-Buildings	**3,205**	**$563,476,491**	**17,299**	**3,355**	**$589,845,424**	**18,102**

*Values and building counts from Fayetteville GIS- January 2010. Current value data does not include any adjustments for the value of contents. The methodology used in preparing this data is described in Appendix C.

Table 13 - Fayetteville Public Buildings & Critical Facilities Flood Vulnerability Assessment

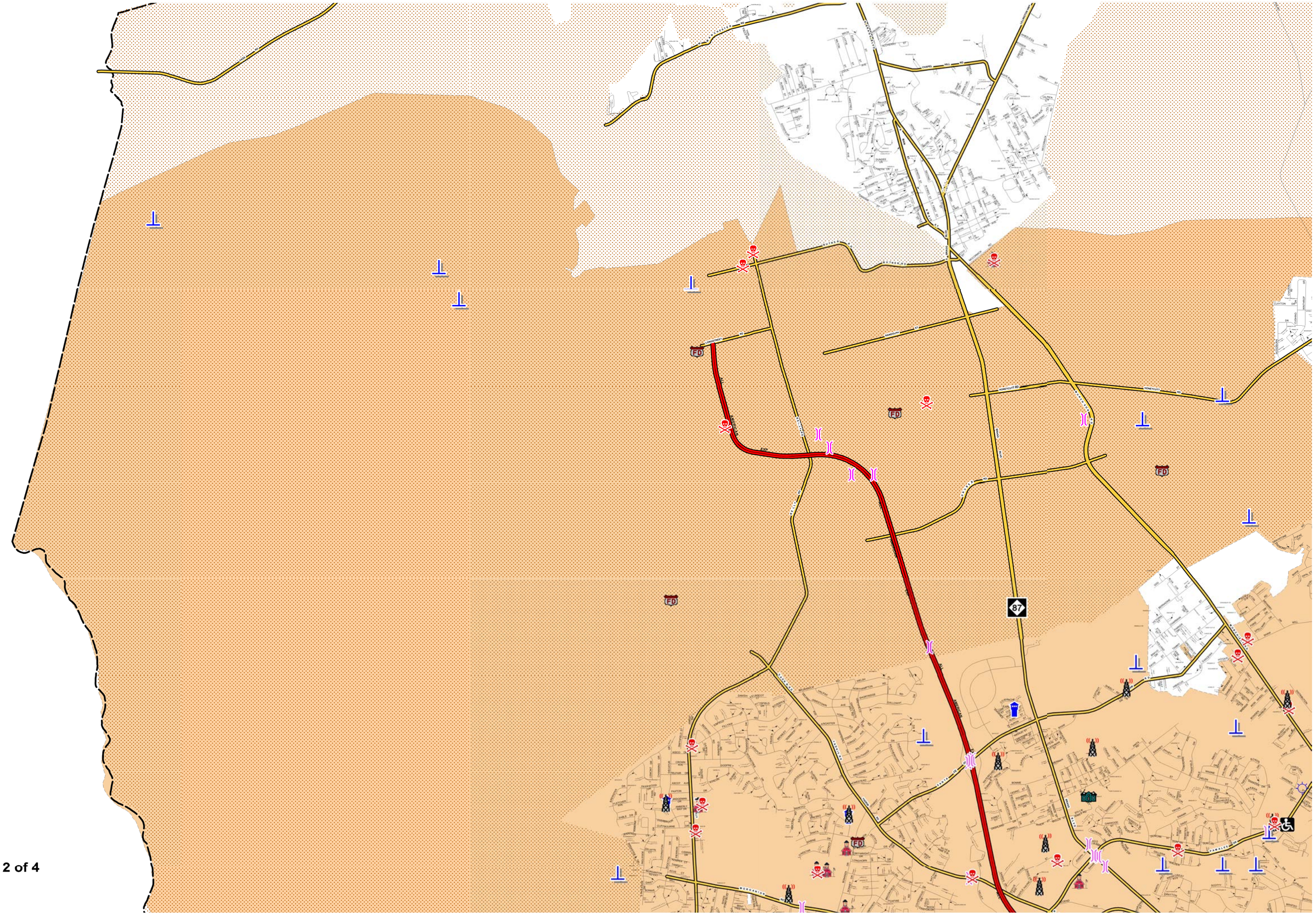
Type(s) Hazard: Flood

Current Conditions				Potential Future Conditions (Projection Year 2025)		
Type of Development	**Number of Existing Public Buildings & Critical Facilities**	*** Current Value**	**Current Number of People**	**Projected Number of Public Buildings**	**Projected Value**	**Projected Number of People**
Sewage Treatment	13	$4,104,703	39	13	$4,104,703	39
Water Treatment Plant	13	$8,970,101	15	13	$8,970,101	15
Hospital	0	$ 0	0	0	$0	0
School (includes	109	$257,612,144	9,685	109	$257,612,144	9,685
Infrastructure (roads, bridges, drainage, dams, and etc.)	Water Lines - 223,664‘ Sewer Lines -587,628‘ Streets - 93,487‘ Bridges - 47 Dams - 30	$20,129,760 $88,144,200 $17,669,043 $76,600,000 $29,200,000	N/A	Water Lines – 248,714‘ Sewer Lines - 653,442‘ Streets - 103,958‘ Bridges - 52 Dams - 33	$22,384,260 $98,016,300 $19,648,062 $85,179,200 $32,470,400	N/A
Police Station	0	$0	0	0	$0	0
Fire Station	1	$638,970	6	1	$638,970	6
Hazard Materials Facilities	12	$7,006,358	14	12	$7,006,358	14
Government offices	70	$77,507,040	1,820	70	$77,507,040	1,820
Emergency Shelter	0	$0	0	0	$0	0
Public Housing	117	$28,699,330	814	117	$28,699,330	814
Private Bldg – Critical	11	$14,451,943	551	11	$14,451,943	551
Non-Profit Bldg – Critical	3	$3,201,473	55	3	$3,201,473	55
Public Bldg. not Critical	23	$4,083,158	41	23	$4,083,158	41
Subtotal-Buildings	**372**	**$406,275,220**	**13,040**	372	$406,275,220	13,040
Subtotal-Infrastructure		**$231,743,003**			$257,698,222	
TOTAL:	**3,577**	**$1,201,494,714**	**30,339**	**3,727**	**$1,253,818,866**	**31,142**

*Values and building counts from Fayetteville GIS - January 2010. Current value data does not include any adjustments for the value of contents. The methodology used in preparing this data is described in Appendix C.

Table 14 - Fayetteville Summary of Current Buildings Vulnerability(1)

CATEGORY OF DEVELOPMENT	Total Buildings in Fayetteville	Buildings in the Defined Flood Hazard Area(5)	Percent of Buildings in the Defined Flood Hazard Area
Privately-Owned Buildings (2)			
Single-Family Residential	54,652	2,217	4.06%
Multi-Family Residential	7,847	633	8.07%
Commercial	3,533	194	5.49%
Industrial	575	80	13.91%
Other	1,010	81	8.02%
Subtotal-Privately-Owned Buildings	**67,617**	**3,205**	**4.74%**
Publicly-Owned Buildings(3)			
Sewage Treatment Plant	13	13	100.00%
Water Treatment Plant	13	13	100.00%
Hospital	39	0	0.00%
Schools	337	109	32.34%
Police Station	1	0	0.00%
Fire Station	16	1	6.25%
Hazard Materials Facilities (4)	63	12	19.05%
Government Offices	196	70	35.71%
Emergency Shelters	4	0	0.00%
Public Housing	209	117	55.98%
Private Buildings That Are A Critical Facility	93	11	11.83%
Nonprofit Buildings That Are a Critical Facility	20	3	15.00%
Public Buildings That Are Not a Critical Facility	289	23	7.96%
Subtotal-Publicly-Owned Buildings	**1,293**	**372**	**28.77%**
Grand Total	**68,910**	**3,577**	**5.19%**
Notes:			
(1) City boundaries are as of 1/25/10 (Annex #513)			
(2) Most of these buildings are privately owned.			
(3) Most of these facilities are publicly owned.			
(4) This data already counted in other categories, so it is being double-counted.			
(5) The Defined Flood Hazard Area is based on the 100 Year Flood boundary as shown on new digital maps recd 2007.			



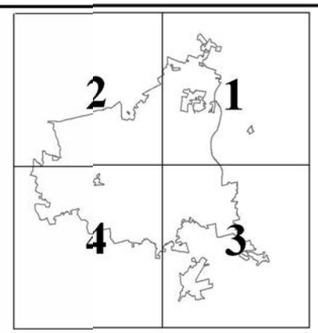
Sheet 2 of 4

Map10

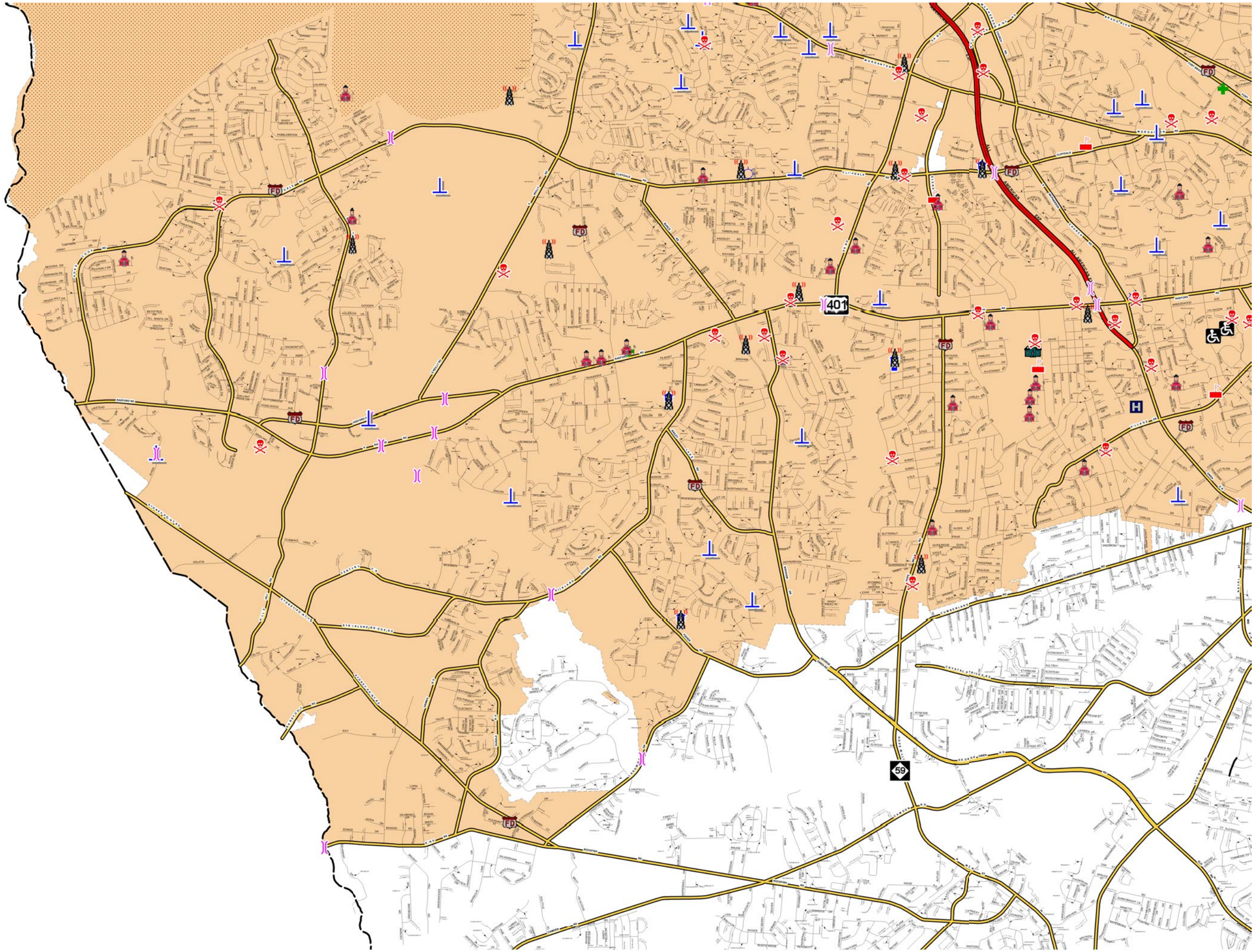
City of Fayetteville Critical Facilities

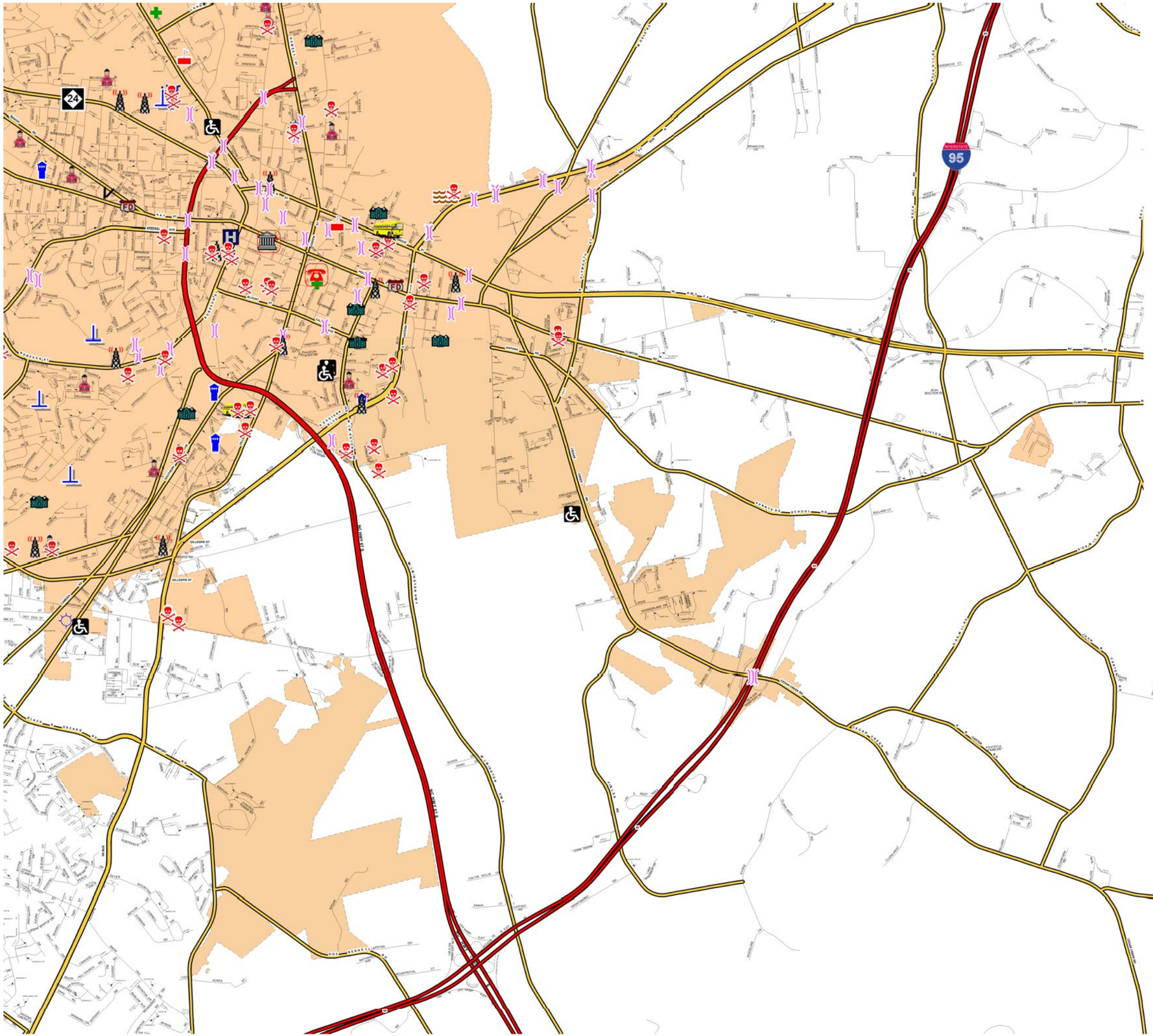
Legend

- Bulk Fuel Storage
- Communication Center
- Public Housing
- Cell Tower
- Hazardous Materials
- Water Tower
- Water Treatment Facility
- Sewage Treatment Facility
- Bridge
- Emergency Shelter
- Police Department
- Town Hall
- Fire Department
- Private - Higher Education
- Public School
- Municipal Boundary
- Streams-Rivers
- Lakes
- Dams
- Resthome
- Bus Station
- Hospital



Sheet 1 of 4


401
59
FD



Legend

- Bulk Fuel Storage
- Communication Center
- Public Housing
- Cell Tower
- Hazardous Materials
- Water Tower
- Water Treatment Facility
- Sewage Treatment Facility
- Bridge
- Emergency Shelter
- Police Department
- Town Hall
- Fire Department
- Private - Higher Education
- Public School
- Municipal Boundary
- Streams-Rivers
- Lakes
- Dams
- Resthome
- Bus Station
- Hospital

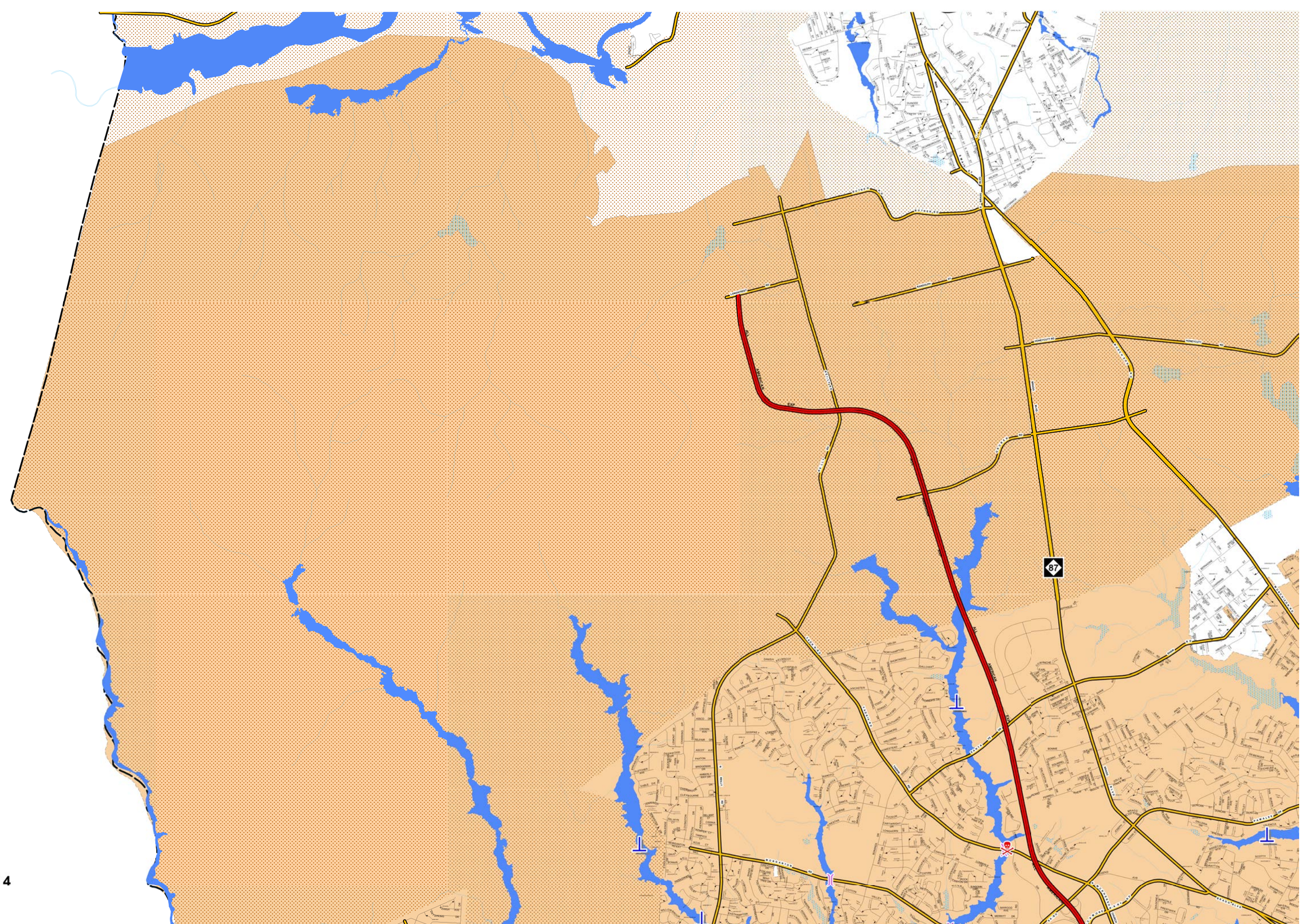
N

0 1 2

miles

Cumberland County
Multi-Jurisdictional
HAZARD MITIGATION PLAN
Update

Sheet 3 of 4



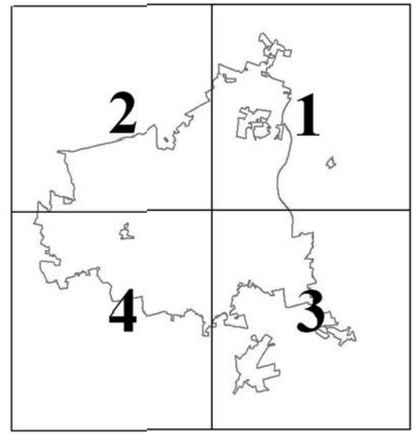
Sheet 2 of 4

Map 11
City of Fayetteville Critical Facilities

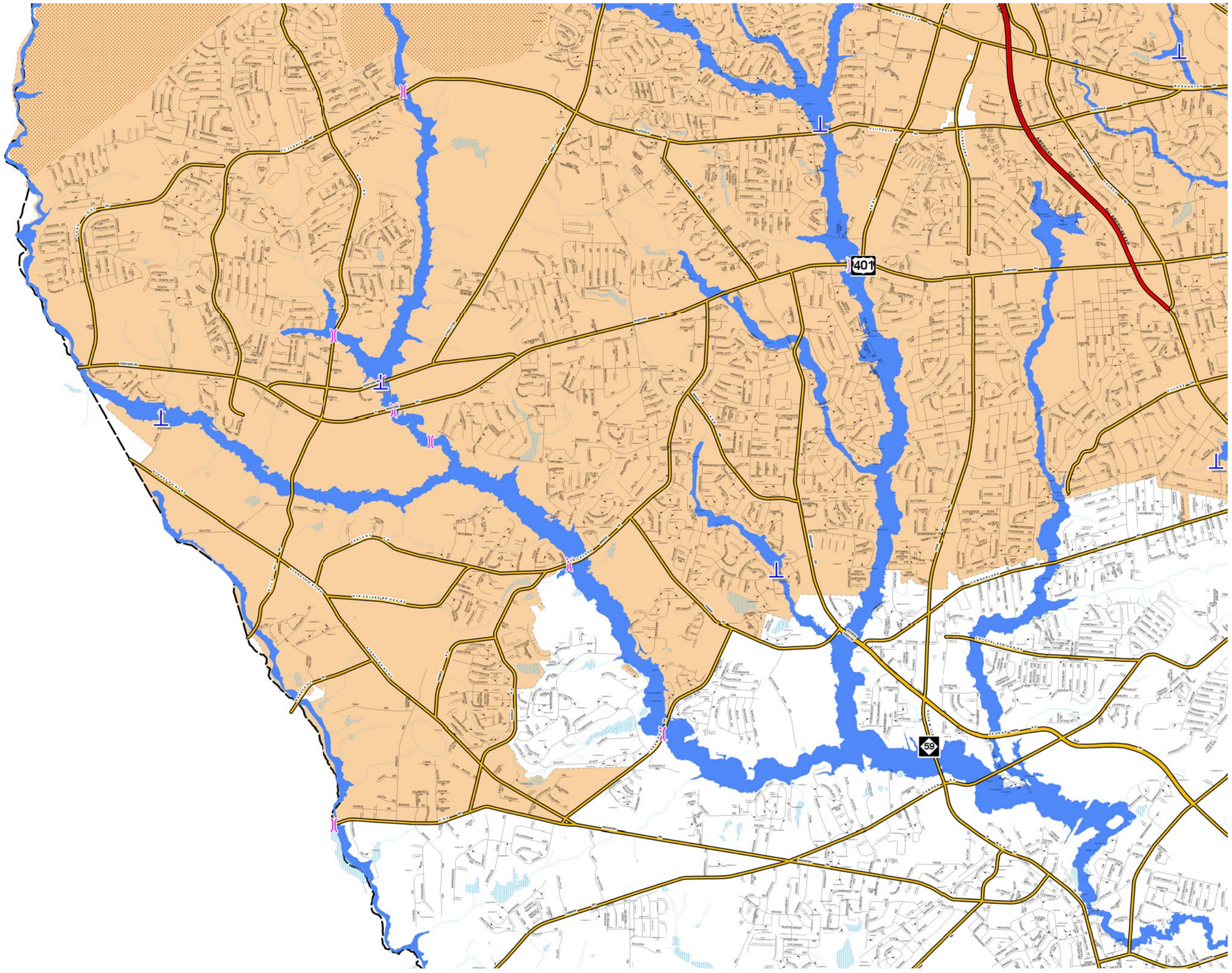
Special Flood Hazard Area

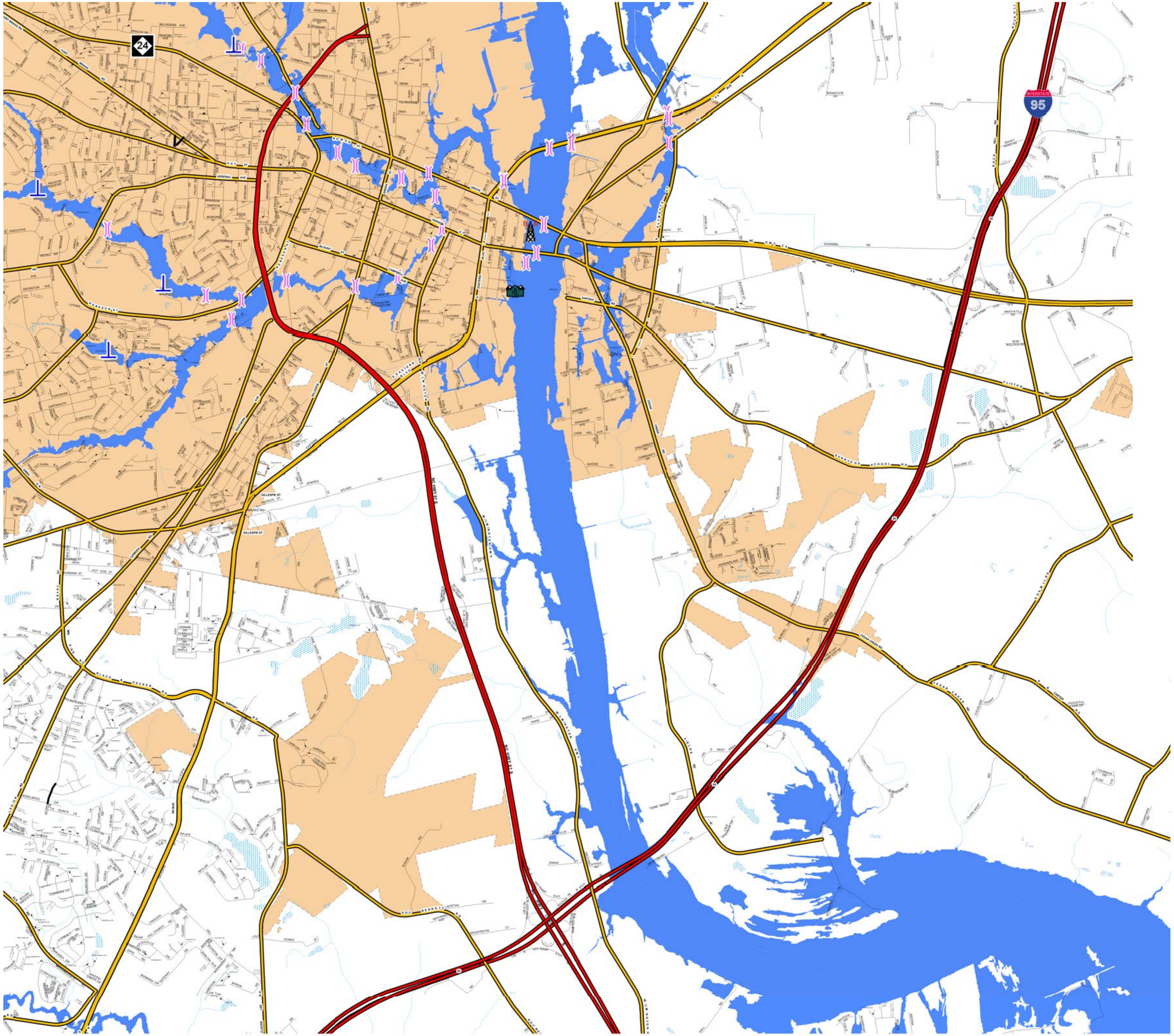
Legend

- Bulk Fuel Storage
- Communication Center
- Public Housing
- Cell Tower
- Hazardous Materials
- Water Tower
- Water Treatment Facility
- Sewage Treatment Facility
- Bridge
- Fire Department
- Private - Higher Education
- Public School
- Municipal Boundary
- Streams-Rivers
- Lakes
- Dams
- Resthome
- Special Flood Hazard Area



Sheet 1 of 4


401
59



Legend

- Bulk Fuel Storage
- Communication Center
- Public Housing
- Cell Tower
- Hazardous Materials
- Water Tower
- Water Treatment Facility
- Sewage Treatment Facility
- Bridge
- Fire Department
- Private - Higher Education
- Public School
- Municipal Boundary
- Streams-Rivers
- Lakes
- Dams
- Resthome
- Special Flood Hazard Area

N

0 1 2

miles

Cumberland County
Multi-Jurisdictional
HAZARD
MITIGATION
PLAN
Update

Sheet 3 of 4

MAP 12
CITY OF FAYETTEVILLE ZONING

MILITARY RESERVATION

Legend

- MUNICIPAL BOUNDARY
- SPECIAL FLOOD HAZARD AREA
- MILITARY RESERVATION
- AGRICULTURAL-RESIDENTIAL DISTRICT
- AGRICULTURAL-RESIDENTIAL/MANUFACTURE HOME
- RESIDENTIAL DISTRICT
- RESIDENTIAL DISTRICT
- RESIDENTIAL DISTRICT
- RESIDENTIAL DISTRICT
- PLANNED NEIGHBORHOOD DISTRICT
- PLANNED NEIGHBORHOOD DISTRICT
- MAUFACTURED HOME OVERLAY DISTRICT
- RESIDENTIAL DISTRICT
- RESIDENTIAL DISTRICT
- RESIDENTIAL DISTRICT
- RESIDENTIAL DISTRICT - MANUFACTURE HOME
- RESIDENTIAL DISTRICT
- RESIDENTIAL DISTRICT
- RESIDENTIAL DISTRICT
- RESIDENTIAL DISRTICT
- PROFESSIONAL DISTRICT
- PROFESSIONAL DISTRICT
- PROFESSIONAL DISTRICT
- PROFESSIONAL DISTRICT
- SHOPPING CENTER DISTRICT
- LOCAL BUSINESS DISTRICT
- LOCAL BUSINESS DISTRICT
- LOCAL BUSINESS DISTRICT
- AREA COMMERCIAL DISTRICT
- CENTRAL BUSINESS DISTRICT
- CENTRAL BUSINESS DISTRICT
- CENTRAL BUSINESS DISTRICT
- HEAVY COMMERCIAL DISTRICT
- NDUSTRIAL DISTRICT
- INDUSTRIAL DISTRICT
- MIXED-USE CONDITIONAL
- CONSERVATION DITRICT
- TOWER OVERLAY DISTRICT

BUSINESS 95
INTERSTATE 95
HIGHWAY 24
RAEFORD RD
BRAGG BLVD
HAY ST
MURCHISON RD
CROSS CREEK
ROBESON ST
WEST ST
HIGHWAY 87
INTERSTATE 95
FAYETTEVILLE MUNICIPAL AIRPORT (UNZONED)

SCALE: NOT TO SCALE

NOTE: ALL OF THE CITY OF FAYETTEVILLE IS DESIGNATED FOR THE FOLLOWING HAZARDS: HURRICANES, TORNADOES, THUNDERSTORMS, DROUGHTS, SEVERE WINTER STORMS, EXTREME HEAT, WILDFIRES AND EARTHQUAKES.

Cumberland County Multi-Jurisdictional
HAZARD MITIGATION PLAN
UPDATE

MILITARY RESERVATION

MAP 13

CITY OF FAYETTEVILLE LAND USE PLAN

Legend

- MUNICIPAL BOUNDARY
- SPECIAL FLOOD HAZARD AREA
- MILTARY RESERVATION INSIDE THE CITY
- ONE ACRE RESIDENTIAL LOTS
- SUBURBAN DENSITY RESIDENTIAL
- LOW DENSITY RESIDENTIAL
- MEDIUM DENSITY RESIDENTIAL
- HIGH DENSITY RESIDENTIAL
- OFFICE & INSTITUTIONAL
- POLICY DIRECTED OFFICE & INSTITUTIONAL
- GOVERNMENTAL
- DOWNTOWN
- HEAVY COMMERCIAL
- POLICY DIRECTED HEAVY COMMERCIAL
- LIGHT COMMERCIAL
- POLICY DIRECTED LIGHT COMMERCIAL
- HEAVY INDUSTRIAL
- LIGHT INDUSTRIAL
- ACITIVITY NODE
- OPEN SPACE

NOTE: ALL OF THE CITY OF FAYETTEVILLE IS DESIGNATED FOR THE FOLLOWING HAZARDS: HURRICANES, TORNADOES, THUNDERSTORMS, DROUGHTS, SEVERE WINTER STORMS, EXTREME HEAT, WILDFIRES AND EARTHQUAKES.

Cumberland County Multi-Jurisdictional HAZARD MITIGATION PLAN UPDATE

4

SCALE: NOT TO SCALE

CAPABILITY ASSESSMENT

In preparing the capability assessment, the Planning Staff involved other City departments and followed the tasks set forth in the State's guidebook in examining the following capabilities: Staff and Organizational Capability, Policy and Program Capability, Legal Authority and Capability, Fiscal Capability, Technical Capability, and Political Climate and Political Willpower.

Staff and Organizational Capability

This discussion of Staff and Organizational Capability is divided into two sections. The first section deals with the City of Fayetteville's staff and organizational capabilities to address the threats of natural hazards. The second section deals with the capability of other departments and agencies that might appear unrelated to mitigation, but in fact do have an impact on addressing the threats of natural hazards.

Fayetteville Staff and Organizational Capability

The City of Fayetteville has a considerable amount of staff and organizational capability to address the threats of natural hazards.

The City of Fayetteville has a council-manager form of government. Under this form of government, the City is governed by a ten-member City Council. Nine of the members of City Council are elected from districts; the Mayor is elected at-large. A City Manager hired by the City Council, acts on the Council's behalf and is responsible for managing the services of the City.

The City has several departments and divisions that deliver services related to addressing threats of natural hazards. These departments include: the Engineering and Infrastructure Department which includes the Stormwater Division and the Street Maintenance Division, the Environmental Services Department, the Fire Department, the Police Department, the Emergency Dispatch Division, the Information Technology Department, the Development Services Department which includes the Planning, Housing and Permits Divisions, and the Community Development Department. In addition, the City owns the Public Works Commission, which is an agency of the City and which has considerable capability to address natural hazards threats. These departments are staffed with capable professionals with considerable expertise and skills. Each of these departments is discussed below.

Engineering and Infrastructure Department - This large department has numerous divisions that deal with hazards, primarily flooding. This department usually is responsible for repairing City-owned dams. When dams are repaired, the risk of flooding is reduced for properties downstream of the dams. This department also reviews plans for development and re-development within the City limits, and it inspects construction activities to include but not limited to streets and drainage. The department also maintains AutoCAD maps of the City streets and City boundaries.

- **Stormwater Division -** This division of the City Engineering and Infrastructure Department serves as the Stormwater Utility, which is a utility governed by the City Stormwater Ordinance. The division is involved in activities that promote stormwater quality and activities that help control water quantity (i.e., flooding). Their activities include investigating complaints; cleaning of culverts; removing debris from streams; clearing beaver dams; maintaining and reviewing the local Stormwater Quality Management Plan to control, limit and monitor stormwater discharges; providing funding for stormwater infrastructure maintenance, repair, and new construction on a prioritized basis on identified problems; monitoring non-point source pollutants through sampling and laboratory analysis; partnering with local business and industry to identify illegal discharges and connections; providing various public education programs including volunteer groups; inspecting major stormwater outfalls to identify and proactively address problems; and providing a

customer service hotline for 24-hour problem reporting and prompt referrals. Recent amendments to the City Stormwater Ordinance will make the Stormwater Division more able to deal with stormwater quantity and quality problems.

- **Street Maintenance Division** - This division of the City Engineering and Infrastructure Department is responsible for maintaining the infrastructure within the City limits to include but not limited to cleaning catch basins and jet rodding activities to assure that the storm drainage infrastructure is free of debris and/or sediment. This activity is funded by the Stormwater utility. In addition to this service, the Street Maintenance Division also operates a street sweeping program.

Environmental Services Department -This department has historically been responsible for picking up leaves during the fall leaf season. During the fall leaf season, residents were allowed to put their loose leaves along the curb, and the Sanitation Department staff would pick up the loose leaves with vacuum trucks. However, the City Council eliminated this service for FY 03-04. The City continued to pick up leaves, but residents were required to bag their leaves. Requiring that leaves be bagged has helped to prevent the clogging of storm drains, which should help reduce localized flooding. The City Council has recently reversed its decision and presently does allow for the pick-up of loose leaves. This decision to restore the loose leaf pickup service might indirectly contribute to more clogging of storm drains, hence more street flooding.

Fire Department - This department operates a system of fire stations throughout the City.

Police Department - This department provides police protection services throughout the City.

Emergency Dispatch Division - This division operates an enhanced 911 center.

Information Technology Department - This department provides computer services to all City departments. This department also employs one GIS Analyst who provides GIS services to all City departments.

Development Services Department - This department is responsible for enforcing the State Building Code within the City of Fayetteville, enforcing the housing code, and carrying out the zoning, subdivision and planning responsibilities for the City. This department is also responsible for enforcing the Flood Damage Prevention Ordinance. The Planning and Zoning Division is responsible for processing requests for rezoning and subdivisions. The divisiont also prepares small area plans, long range comprehensive and land use plans, functional plans, special studies, and annexation demographic estimates. It administers historic property regulations. Staff in this division participated in the preparation of the 2030 Vision Plan, has nearly completed a new Unified Development Ordinance and will be involved in preparing a new comprehensive plan for the City in the near future.

Community Development Department - This department is responsible for developing and administering programs that assist low and moderate-income residents in the City. This program has recently funded several special studies of small areas in the City. This department also coordinated the funding and work on the Hope VI project now underway, which will result in fewer units within a floodplain and creation of a greenway along a stream.

Public Works Commission (PWC) - This agency owns a system of lakes on Little Cross Creek, which flows through the City of Fayetteville. PWC has acquired these lakes for water supply purposes. Although these lakes were not constructed originally to provide flood control, they do reduce peak flows and therefore reduce flooding in the City of Fayetteville. This agency constructs and maintains an extensive system of water and sewer lines. These lines have a major impact on where development will occur in the future. It also is the primary provider of electrical service within the City.

Other Departments-Staff and Organizational Capability

U.S. Corps of Engineers - Flooding problems in the City of Fayetteville (and in Cumberland County) used to be due to flooding of the Cape Fear River. Major floods occurred in 1908, 1944, 1945, 1954, 1955, and 1972. In 1974, the U.S. Corps of Engineers reduced the likelihood of floods on the Cape Fear River when it constructed the B. Everett Jordan Dam and Lake on the Haw River, about 55 miles upstream from Fayetteville. By regulating the flow of water over the Jordan Dam, the Corps of Engineers controls flooding on the Cape Fear River. It is assumed that the U.S. Corps of Engineers is highly capable of controlling flooding on the Cape Fear River. It is also assumed that this capability will continue.

Policy and Program Capability

Policy and program capability refers to the efforts that the City of Fayetteville already has in place to address the threats of natural hazards, and the plans and policies that guide these efforts. It also refers to policies and practices that are not directed at mitigation or natural hazards per se, but which may have an effect on mitigation-related efforts.

The Planning Staff examined the City's policy and program capability to address the threats of natural hazards as shown in **Table 15 - Fayetteville Inventory of Local Ordinances, Policies and Programs Relevant to Hazard Mitigation.** The Staff found that the City has a fairly strong policy and program capability to address natural hazards threats. Specific examples of the City of Fayetteville's policy and program capability are discussed below. Each policy or program is addressed by a summary of its strengths and weaknesses, and the staff's rating of its overall effectiveness. Strengths are ways that the policy or program helps to decrease vulnerability. Weaknesses are shortcomings in the policy or program that might increase vulnerability. Most of the actions in the original Mitigation Plan that require ordinance revisions or policy changes have been completed and/or adopted. The Planning Staff is responsible for rewriting, updating (zoning and subdivisions) and creating new ordinances. These ordinances comply with many of the mitigation actions that the City Council has already endorsed. Those actions that have not been completed are more developer resistance and cost prohibit. The Technical Committee will continue educating concerning mitigation and those actions with citizens, elected officials and development community.

Flood Damage Prevention Ordinance - Fayetteville's Flood Damage Prevention Ordinance purpose is to reduce and/or prevent flooding thus protecting the lives and property of it residents. The 2006 amendments to the Flood Damage Prevention Ordinance significantly strengthened key standards. The strengths of this ordinance are (1) it requires elevating structures in the floodplain at least two feet above the base flood elevation, when new construction is proposed or when a substantial improvement to an existing development is proposed. The elevation requirement applies to both residential and nonresidential development. However, non-residential development can be flood proofed in lieu of elevating, if all areas of the non-residential structure below the required elevation are watertight; (2) it includes building, rebuilding and retrofitting codes for flood-prone structures; (3) it prevents or regulates the construction of flood barriers that would unnaturally divert floodwaters or increase flood heights; (4) it addresses the location of mobile home parks and individual mobile homes in the floodplain.

Weaknesses remaining in this ordinance include (1) it does not require relocating or acquiring structures in the floodplain; (2) it does not define a floodplain overlay district (although a Conservation District zoning district has been created to provide alternative guidance to use of development in a floodplain); (3) it does not identify properties for acquisition/relocation or for wetlands preservation; and (5) the ordinance does not include measures to preserve the floodplain's natural functions (although the Zoning Ordinance and the new Stormwater Ordinance both include buffer areas and/or landscape standards and open space requirements to protect natural functions). The staff rates the effectiveness of this ordinance as medium.

National Flood Insurance Program and Community Rating System - The National Flood Insurance Program (NFIP) provides flood insurance to individuals in local jurisdictions that are members of the program. Membership in the Program is based upon the adoption and enforcement of floodplain management and development regulations. Compliance of the NFIP for the City of Fayetteville is responsibility of the Fayetteville Development Services Department. They maintain the Fayetteville flood maps and Flood Damage Prevention Ordinance and issue Floodplain Development Permits for the City in accordance with compliance of NFIP. An element of the NFIP is the Community Rating System (CRS), which adjusts flood insurance premiums relative to a local jurisdiction's investment in flood damage mitigation. Inclusion in the CRS involves submitting a local jurisdiction's floodplain management procedures for evaluation.

Zoning Ordinance - The Fayetteville Zoning Ordinance purpose is to lessen congestion in the streets; secure safety from fire, panic, and other dangers; promote health, morals and the general welfare; provide adequate light and air; prevent overcrowding of land; avoid undue concentration of population; facilitate the adequate provision of transportation, water sewerage, schools, parks, and other public requirements; conserve the value of buildings; and encourage the most appropriate use of land throughout the City. The Zoning Ordinance has both strengths and weaknesses. The strengths of the Ordinance are (1) includes non-conforming use provisions that take into account structures that are damaged by hazards; (2) non-conforming use provisions are strictly enforced following a hazardous event; (3) zoning administration staff are properly trained, which insures proper administration of the ordinance; (4) granting of variances does not usually result in an increased risk of flooding; (5) recently amended to include a Conservancy District (CD Zoning District). One of the purposes of the CD Zoning District is to protect areas that are vulnerable to flooding. The only uses to be allowed in the CD Zoning District will be agricultural or rural farm use, fish hatchery operations, and recreational activities. The adopted CD Zoning District will be applied first in areas that have been recently annexed. It may be applied as cases arise. It also may be applied citywide after the City prepares a new Land Use Plan.

The weakness in the ordinance is that although its non-conforming use provisions do take into account structures that are damaged by hazards, the ordinance does not require that cumulative damage be considered over repeated hazard events. The staff rates the effectiveness of the Fayetteville Zoning Ordinance as medium.

Subdivision Ordinance - The Fayetteville Subdivision has many positive attributes. These include (1) requiring developers to limit the amount of or mitigate the impact of increased stormwater flow caused by their development projects; (2) requiring developments be built in a hazard-resilient manner. (For example, there are requirements within the group development section of the ordinance requiring a certain distance between buildings. This is also addressed through the NC Building Code regarding fire walls and the Fire Codes (NFPA) regarding requirements for multiple ingress and egresses and extensions of fire hydrants); (3) requiring the creation of open space within new subdivisions and/or group developments; (4) requiring that new developments have underground utility lines where practical (except for voltage lines 75kV or greater).

There are also some weaknesses in the Fayetteville Subdivision Ordinance which are (1) it require that a proposed subdivision have at least one access road, but the ordinance does not require additional access roads or breakaway gates. However, both Fire and Police have been requiring a common lock system on gates or breakaway gates, and, the Fire Department along with the Traffic Engineer are increasingly requiring multiple entrances. A connectivity index requiring multiple external access points is proposed in the draft Unified Development Ordinance. Single-entry neighborhoods can be dangerous if the path of exit is blocked by floodwaters or wildfires;(2) it contain provisions for the creation of open space within new subdivisions and/or group developments, as a condition of subdivision approval, but the ordinance does not require the protection of existing ~~"n~~atural areas"; (3) it does not restrict the subdivision of land in known hazard areas. (There are other ordinances that do place additional restrictions on the ~~"d~~evelopment" of land within certain areas, but not on the ~~"s~~ubdivision" of land); (4) it

does not limit the amount of impervious surface (This is addressed in the Watershed Ordinance.); (5) it does not require setbacks from delineated hazard zone (this is addressed in the Stormwater Ordinance with regard to streams and similar water bodies); (6) it does not require that all lots have a buildable site that is in a non-hazard location; (7) it does not assess hazard risks and impose standards for public infrastructure. The staff rates the effectiveness of this ordinance as medium.

Stormwater Ordinance - The Stormwater Ordinance applicable to the City of Fayetteville is the City Ordinance that governs the operation of the local Stormwater Utility. The ordinance initial focus was on water quality, not water quantity. The Stormwater Ordinance has recently been amended by the City Council to allow a focus on both water quality and water quantity. The weaknesses identified in the past were addressed under the amended ordinance. Its strengths are (1) it establishes a stormwater utility; (2) it establishes a Stormwater Advisory Board; (3) it authorizes collection of a fee, based on amount of impervious surface; (4) it prohibits non-stormwater discharges to the stormwater system; (5) it requires the removal of illicit connections to the stormwater system; (6) it prohibits improper disposal of substances into the stormwater system; (7) its funds are used for checking/clearing stormwater drains and improving and maintaining existing infrastructure; (8) Its funds are also used for removing debris from streams. (9) it is focused not only on stormwater quality but quantity as well; (10) it addresses the fact that existing culverts might not be sized properly for the amount of water they must carry during peak drainage events; (11) it requires that future planned systems be adequately designed to meet stormwater demands; (12) it calls for provision of structural measures (such as retention and detention facilities) that would minimize the increases in runoff caused by impervious surfaces and new development; (13) it requires that stormwater must not leave a parcel at a higher rate after the parcel has been developed than it did prior to development . The staff rates the effectiveness of this ordinance as medium.

Watershed Ordinance - The Fayetteville Watershed Ordinance is based on the State‘s model ordinance. There are both positive and shortcomings aspects in the Fayetteville Watershed Ordinance. Positive measures include it (1) has density limits that help to prevent development in known hazard areas; (2) prohibits certain uses from being constructed in known hazard areas; (3) imposes limits on the amount of impervious surface in a development project; (4) requires developers to limit the amount and/or mitigate the impacts of increased storm water flow due to their development projects; (5) establishes setback requirements from delineated hazard zones; (6) assesses hazard risks and imposes standards for public infrastructure; (7) requires the protection or creation of natural areas (such as wetlands, dunes, or natural vegetation). Some of the shortcomings of this ordinance are (1) it does not impose restrictions on the subdivision of land in known hazard areas; (2) it does not require all lots to have a buildable site that is in a non-hazard location; (3) it does not require that developments be built in a hazard-resilient manner. The staff rates the effectiveness of this ordinance as medium.

Inspections Process - The City Development Services Department is responsible for reviewing plans and performing on-site inspections throughout the construction phases of a development project. There are strengths and weakness in this process. The strengths of the inspections process are (1) the Development Services Department is adequately staffed and trained; (2) The department diligently enforces the Statewide building code, both at the Plan approval stage and at the site-inspection stage; (3) the same rules and practices are applied during normal times and during the period following a natural disaster. Weaknesses in the process are (1) the department does not have a building moratorium ready to put in place following a disaster, which would halt or slow construction pending a thorough damage assessment; and (2) the department does not have a voluntary incentive program to encourage builders to construct buildings to standards higher than the minimum code requirements. The department notes that it would be beneficial to have more time to thoroughly assess damage prior to post-hazard reconstruction. The staff rates the effectiveness of this process as low.

Flood Maps – In 2007 the City has received new GIS flood maps received from the State.. The new flood data significantly improves the ability of all departments to coordinate planning and approvals regarding new development and infrastructure. The strengths are (1) it shows the 100-year and 500-

year flood hazard areas; (2) it is possible to use GIS to overly the GIS flood map layers with other layers in GIS; (3) the data is judged to be ~~"m~~more accurate" than the paper flood maps and previous GIS-based maps prepared from NAD 83 datum. The staff rates the effectiveness of the GIS flood maps as medium.

Comprehensive Plan/Land Use Plan - In 1996, the City adopted the Cumberland County 2010 Land Use Plan as a guide for development. This Plan encompasses all the jurisdictions in Cumberland County. Strengths of the Plan relating to hazard mitigation included designating hazard areas as inappropriate for development and designating environmental corridors (located along rivers, creeks, streams, canals, and major drainageways) as being targeted for future open space. A weakness in the Plan was that while it delineated many flood prone conservation areas; it lacks an implementation process for limiting development in such areas. Creation of the Conservation Zoning District improved the implementation options. The City with the County and other local governments in the county in preparing a new comprehensive goals and policy plan called Vision 2030, adopted by the City in 2009, which established strong principles to guide development in more sustainable ways. While a new Unified Development Ordinance to help implement those policies is still in draft, the Vision 2030 strengthens the basis for such new or amended regulations. The Land Use Plan, however, needs updating at an adequate level of detail to apply such new tools. The staff rates the effectiveness as low.

Capital Improvements Plan - In developing a Capital Improvements Plan (CIP), the City documents the need for future capital projects, prepares cost estimates, prioritizes projects, and considers funding sources. The positive aspect of the CIP is that it provides information about planned future public facilities. The weak point in the CIP is that there is no specific requirement for dealing with hazard mitigation. For example, the CIP does not prohibit the post-disaster reconstruction of public facilities in hazard-prone areas. The staff rates the effectiveness as medium.

Parks, Greenways, and Open Space Acquisition Program - The parks, greenways, and open space acquisition program can result in the City acquiring land that is located in floodplains or flood prone areas. The City of Fayetteville acquires land for parks, greenways, and open space through purchase and donations. The City's goal is to have 10 acres per 1,000 residents. As of June 2003, the City had 9.8 acres per 1,000 residents. The strength of this acquisition program is that (1) the City purchases land for parks, greenways, and open space purposes,(subject to funds being available in the General Fund); (2) the City forms partnerships with non-governmental organizations to acquire or otherwise protect natural land. For example, the City works with the Sandhills Area Land Trust and the Cross Creek Linear Park Corporation. Weaknesses in this acquisition program is that (1) the purchase program is limited by lack of funds; (2) prior attempts to fund purchases through bond referenda have not been successful; (3) the City does not seek to purchase land that is in floodplains. The staff rates the effectiveness as low.

Parks, Greenways, and Open Space Dedication Program - A parks, greenways, and open space dedication program can result in the protection of land located in floodplains. Through provisions in the Subdivision Ordinance, the City of Fayetteville requires the dedication of land for parks, greenways, and open space. There are both strengths and weaknesses in this program. The strengths are (1) dedications are required by the City's Subdivision Ordinance whenever an owner subdivides land for residential purposes, or whenever an owner proposes to add residential units in a group development. In lieu of dedicating land, owners may pay an amount of money; (2) owners may dedicate land located in a floodplain to the City, but the land must be outside of the 100-year flood area in order for the owner to get credit for the dedication; (3) the City forms partnerships with non-governmental organizations in protecting land through dedications. For example, the City works with the Sandhills Area Land Trust and the Cross Creek Linear Park Corporation. Weaknesses in the program are the owners may seek variances from the dedication requirements and there is no provision in City ordinances that requires dedication of land for greenway trails or flood easements. The staff rates the effectiveness as low.

Table 15 - Fayetteville Inventory of Local Ordinances, Policies and Programs Relevant to Hazard Mitigation

TITLE & ADOPTION DATE	DOCUMENT REFERENCE	PURPOSE & DESCRIPTION	MITIGATION EFFECTIVENESS	RATIONALE FOR EFFECTIVENESS	MITIGATION STRATEGY
Flood Damage Prevention Ordinance New Ordinance S2006-013, 10/23/06	Existing ordinance that should be continued, but modified	Section 12-122(1) (Elevation requirement for residential construction	Medium	It requires that the lowest floor (including basement) be elevated no lower than at/or above the base flood elevation (for both new residential development and substantial improvement to existing residential development).	Modify ordinance to require that the lowest floor (including basement) be elevated at least one foot above the base flood elevation, or to a more restrictive level. DONE (2‘ free board)
Flood Damage Prevention Ordinance New Ordinance S2006-013, 10/23/06	Existing ordinance requirement that should be modified	Section 12-122(2) (Elevation requirement for non-residential construction)	Medium	It requires that the lowest floor (including basement) be elevated no lower than at/or above the base flood elevation (for both new non-residential development and substantial improvement to existing nonresidential development).	Modify ordinance to require that the lowest floor (including basement) be elevated at least one foot above the base flood elevation, or to a more restrictive level. DONE (2‘ freeboard)
Flood Damage Prevention Ordinance	Existing ordinance provision that should be continued	Section 12-122(2) (Flood-proofing provision for nonresidential construction) (in lieu of elevating)	Medium	In general, elevating is more effective than flood proofing. This provision allows flood proofing in lieu of elevating for both new non-residential development and substantial improvement to existing nonresidential development. This provision is rated as medium because if flood proofing is chosen, all areas of the structure below the required elevation must be watertight. An engineer or architect must certify that flood-proofing standards are met.	City should consider flood proof existing City-owned buildings that are located in flood hazard areas and perhaps encouraging the private sector to do like wise

TITLE & ADOPTION DATE	DOCUMENT REFERENCE	PURPOSE & DESCRIPTION	MITIGATION EFFECTIVENESS	RATIONALE FOR EFFECTIVENESS	MITIGATION STRATEGY
Flood Damage Prevention Ordinance New Ordinance S2006-013, 10/23/06	Existing ordinance requirement that should be modified	Section 12-122(3) a & b (Elevation requirement for manufactured homes)	Medium	It requires that the lowest floor be elevated no lower than at/or above the base flood elevation (when manufactured homes are placed or substantially improved on specified sites).	Modify ordinance to require that the lowest floor be elevated at least one foot above the base flood elevation, or to a more restrictive level. DONE (2' freeboard)
Flood Damage Prevention Ordinance New Ordinance S2006-013, 10/23/06	Existing ordinance requirement that should be continued	Section 12-122(3) a, b & c (Anchoring requirement for manufactured homes)	High	It requires that manufactured homes be anchored to prevent flotation, collapse, or lateral movement.	Monitor State rules regarding anchoring. Amend local ordinance to reflect any changes in State rules. DONE (anchoring and other standards per State code)
Flood Damage Prevention Ordinance Revised per New Ordinance S2006-013, 10/23/06	Existing ordinance provision that should be modified	Section 12-122(8) (Allows encroachment in floodways	Low	This provision allows encroachments in floodways if studies show that the proposed encroachment would not result in any increase in flood levels during the occurrence of a base flood. This provision is rated as low because it does not clarify whether the studies must consider the cumulative impact of other existing encroachments.	Amend ordinance to clarify that the studies required for a proposed encroachment must consider the cumulative impact of other existing encroachments and developments. DONE (renumbered per above ordinance to 12-126).
Zoning Ordinance	Recently-adopted ordinance provision that should be implemented	Section 30-31 (List of Zoning Districts)	Low.	The CD (Conservancy District) zoning district has recently been added to the list of zoning districts. However, the CD Zoning District has not yet been applied. Therefore, its effectiveness is rated as low.	The City should apply the CD (Conservancy District) Zoning District. It should be applied first in the recently annexed areas. Then, it should be applied as cases arise. When the State delivers new flood maps, the City should apply the new CD zone to flood hazard areas.

TITLE & ADOPTION DATE	DOCUMENT REFERENCE	PURPOSE & DESCRIPTION	MITIGATION EFFECTIVENESS	RATIONALE FOR EFFECTIVENESS	MITIGATION STRATEGY
Zoning Ordinance	Existing ordinance provision that should be continued, but modified	Section 30-68 (Non-conforming use provisions)	Medium	The non-conforming use provisions of the ordinance take into account structures that are damaged by hazards. (The provision limits repair, reconstruction, and renovation to 50% of the reproducible cost in instances of fire and other natural causes.) However, the provision does not take into account cumulative damages over repeated hazard events. Therefore, the effectiveness is rated as medium.	Modify ordinance to require that cumulative damage be considered over repeated hazard events.
Subdivision Ordinance Relevant standards pending in the draft UDO	Existing ordinance provision that should be continued, but modified	Section 25-31(4) a (Lots-Layout-Requirements for Access)	Medium	The ordinance requires that a proposed subdivision have at least one access road. Although not required by the ordinance, the Fire Dept, Planning and Traffic Eng'g. staff increasingly have required additional access roads or breakaway gates.	Amend ordinance to require additional access roads for developments located near potential hazard-prone areas.
Subdivision Ordinance Relevant standards pending in the draft UDO	New ordinance provision that should be added	Not in ordinance (Protection of existing ~~-n~~atural areas")	Low	The ordinance does not require the protection of existing ~~-n~~atural areas." (However, the ordinance does contain provisions for the protection of open space within new subdivisions and/or group developments.)	Amend ordinance to require protection of all ~~-n~~atural areas."
Subdivision Ordinance Relevant standards pending in the draft UDO	New ordinance provision that should be added	Not in ordinance (Restrictions on subdivision of land in known hazard areas)	Low	The ordinance does not restrict the subdivision of land in known hazard areas. (There are other ordinances that place restrictions on the —de~~v~~elopment" of land within certain areas, but not on the ~~-s~~ubdivision" of land.)	Amend the ordinance to restrict the subdivision of land in known hazard areas...

TITLE & ADOPTION DATE	DOCUMENT REFERENCE	PURPOSE & DESCRIPTION	MITIGATION EFFECTIVENESS	RATIONALE FOR EFFECTIVENESS	MITIGATION STRATEGY
Subdivision Ordinance Relevant standards pending in the draft UDO	New ordinance provision that should be added	Not in ordinance (Limits on the amounts of impervious surface)	Low	The ordinance does not limit the amount of impervious surface. (The Watershed Ordinance does include such limits. However, the Watershed Ordinance does not apply citywide.)	Amend the ordinance to add reference to the limits on impervious surface contained in the Watershed Ordinance and in the proposed new buffer/landscape planting area that is proposed for inclusion in the Zoning Ordinance. This will make developers aware of these additional requirements.
Subdivision Ordinance Also see Storm-water Ordinance	New ordinance provision that should be added	Not in ordinance (Setbacks from delineated hazard areas	Low	The ordinance does not require setbacks from delineated hazard zones. (This is addressed in the Flood Damage Prevention Ordinance. The new Stormwater Ordinance also requires an undisturbed setback from streams.)	Amend the ordinance to add reference to the setback requirement in the Flood Damage Prevention Ordinance. This will make developers aware of these additional requirements.
Subdivision Ordinance	New ordinance provision that should be added	Not in ordinance (Requirement that final plat show a buildable building envelope)	Low	The ordinance does not require that all lots have a buildable site that is in a non-hazard location.	Amend the ordinance to add requirement that the final plat should indicate a ~~b~~buildable" building envelope for each newly created lot.
Subdivision Ordinance	New ordinance provision that should be added	Not in ordinance (Assessment of hazard risk)	Low	The ordinance does not assess hazard risks and impose standards for public infrastructure. (This is addressed in the Flood Damage Prevention Ordinance.)	Amend the ordinance to add reference to these requirements in the Flood Damage Prevention Ordinance. This will make developers aware of these additional requirements.

TITLE & ADOPTION DATE	DOCUMENT REFERENCE	PURPOSE & DESCRIPTION	MITIGATION EFFECTIVENESS	RATIONALE FOR EFFECTIVENESS	MITIGATION STRATEGY
Stormwater Ordinance	Chapter 23: Article I: Utility Fee Article II. Pollution reduction Article III: Stormwater Control - Quantity & Quality	Pollution & Peak runoff reduction along with fee collection	Medium	Until recently, the governing ordinance limited the mission of the Stormwater Utility to a focus on stormwater quality. Recent changes in the ordinance have meant that the mission of the utility has expanded to include water quantity.	Now that the ordinance has been amended, the Stormwater Utility should develop a comprehensive Stormwater Plan that includes possible projects and costs, and that is prepared in light of more stringent rules being required by the State. The Plan is needed in order to serve as a guide on how to spend the Utility's revenues.
Catch Basin Cleaning Program	Existing program (funded by Stormwater Utility) that should be expanded Chapter 23		Medium	The Stormwater Utility funds this program, which is operated by the City Street Maintenance Division. Effectiveness is limited by availability of funds.	Stormwater Utility should consider expanding funds for this program.
Stream Debris Cleaning Program	Existing program (funded by Stormwater Utility) that should be expanded		Medium	Keeping the streams and other drainage ways free of debris allows the free flow of water, which prevents backups and flooding during heavy rains. Effectiveness is limited by the availability of funds and the need to obtain regulatory permits. .	Stormwater Utility should consider expanding funds for this program.
Watershed Ordinance	Existing ordinance that should be continued	Chapter 29 of City Code	Medium	The current ordinance is based on the State's model ordinance. The ordinance adequately addresses water quality and it promotes hazard mitigation as well by limiting development in watershed areas. These watershed areas include miles of perennial waters that are subject to flooding and other hazards.	No major changes are needed in the current ordinance. However, some amendments are being considered to synchronize minor standards, such as fencing requirements, with Stormwater Ord. and the draft UDO.

Overall, the local ordinances, policies and programs relevant to Hazard Mitigation are not as effective as they might be in terms of hazard mitigation (see Table above). Although significant improvements have occurred with amendments or completely new ordinances for Flood Protection, Stormwater, Zoning and some other regulations, several ordinances should be revised to provide stricter development standards. Review of these existing plans, ordinances and programs has resulted in specific actions to create new ordinances (or to revise existing ordinances) that would serve to reduce the hazard vulnerability of the City of Fayetteville. Preparation, review and revisions of these ordinances are an on-going process, including examination of plans and policies. Recommendations and action plans contained within these planning documents will be examined, as well as Actions contained within the Cumberland County Multi-Jurisdictional Hazard Mitigation Plan. Additionally, the five-year review of this Hazard Mitigation Plan will include an examination of the Capability Assessment and Mitigation Strategies.

Technical Capability

The City of Fayetteville is now developing a technical capability to address the threats of natural hazards. One example of this is the use of GIS technology.

Agencies such as the Federal Emergency Management Agency (FEMA) and the North Carolina Division of Emergency Management (NCDEM) have made available numerous implementation manuals and other resource documents. These manuals provide information on mitigation techniques for various hazards, including hurricanes, floods, wildfires, tornadoes and earthquakes. Additionally, they provide technical information on engineering principles, construction methods, costs and suggestions for how techniques can be financed and implemented. Federal agencies such as the U.S. Army Corps of Engineers and Soil Conservation Service also provide similar services.

Statewide Floodplain Mapping Initiative

The State of North Carolina, through the Federal Emergency Management Agency‘s Cooperating Technical Community partnership initiative, has been designated as a Cooperating Technical State (CTS). As a CTS, the State will assume primary ownership and responsibility for Flood Insurance Rate Maps (FIRM) for all North Carolina communities. This project will include conducting flood hazard analysis and producing updated Digital Flood Insurance Rate Maps (DFIRM).

The State has acquired raw elevation data for the six eastern river basins, which are the Cape Fear, Lumber, Neuse, Pasquotank, Tar-Pamlico, and White Oak, which will be used to develop Digital Elevation Models (DEMs) to update flood hazard data. Additionally, the updated flood hazard data will provide current, accurate information for local jurisdictions and property owners to make sound site planning and design decisions when building new structures and infrastructure and retrofitting existing structures.

Local Technical Assistance

Cumberland County has a graphic information system (GIS) that provides essential information and technology for hazard response and mitigation. The GIS system provides detailed data on property ownership, land use type and location, values of property and structures, location of the 100-year floodplain and other infrastructure.

This system provides quick access and processing of detailed data that can be used to assist in deployment of resources, before, during and after a natural disaster, as well assists in planning for the mitigation of future disasters.

Cumberland County, the City of Fayetteville, and the smaller municipalities have responsive, cooperative, and highly trained staff that is capable of implementing mitigation strategies, as well as educating the public about potential hazards and the process necessary to mitigate these hazards.

Fiscal Capability

The City of Fayetteville has a moderate amount of fiscal capability to address the threat of natural hazards. The North Carolina General Assembly has empowered municipalities to make expenditures in the public interest [NCGS 160A 475]. The primary source for funding these expenditures comes from property taxes. These revenues generally finance critical services available and delivered on a daily basis. Examples of these services include: public utilities, solid waste management, emergency services, health and social services, and schools. The City of Fayetteville will pursue other available funds to support special projects for hazard mitigation activities. Federal and State funds are available to local governments for the development and implementation of hazard mitigation plans. Some of these sources for hazard mitigation funding may include the following:

Federal Funding

Hazard Mitigation Grant Program (HMGP) - This program provides funding for hazard mitigation measures following a Presidential disaster declaration. Even though the Federal government supplies the majority of the funds for this program, the program is administered on the State level. HMGP funds can be used for projects such as acquisition or relocation, retrofitting, development of local mitigation standards and comprehensive mitigation plans, structural hazard control and the purchase of equipment to improve preparedness and response.

Pre Disaster Mitigation Program Grants (PDM) - Pre Disaster Mitigation Program provides funding to States and local jurisdictions for cost-effective hazard mitigation actions. FEMA provides PDM grants to States, that in turn, provide sub-grants to local governments for mitigation activities such as planning and the implementation of projects identified through the evaluation of natural and man-made hazards.

Flood Mitigation Assistance Programs - This program (FMAP) furnishes mitigation assistance to States, local jurisdictions and individuals to reduce or eliminate the long-term risk of flood damage to the built environment and real property. FMAP is available on an annual basis and eligibility is based upon a jurisdiction participating in the National Flood Insurance Program and developing a mitigation plan. These funds may be used for elevation and/or dry flood proofing of structures, acquisition of real property, relocation or demolition of structures, as well as other minor structural projects.

National Flood Insurance Program - Participation in this risk-sharing program requires jurisdictions to adopt and enforce floodplain management ordinances designed to reduce future losses.

Buy-Out Programs - Funding is available to buy back floodplains, relocate residents, and demolish structures in order to eliminate or reduce payouts for recurring flood damage.

Earthquake Hazard Reduction Grants - These funds are available to States having a moderate or high risk of seismic activity.

Community Development Block Grants - The Community Development Block Grant (CDBG) is designed to assist counties and municipalities in rehabilitating substandard dwelling units and to expand economic opportunities, primarily for low-to-moderate income families. Additionally, as a result of a Presidential declared disaster, CBDG funds may be used for long-term needs such as acquisition, reconstruction, and redevelopment of disaster-affected areas.

Small Business Administration (SBA) Pre-Disaster Mitigation Loan Program - The purpose of this program is to make low-interest, fixed-rate loans to eligible small businesses for the purpose of implementing mitigation measures to protect business property from damage that may be caused by future disasters. The program is a pilot program, which supports the Federal Emergency Management Agency (FEMA) Pre-Disaster Mitigation Program.

State Funding

Uniform Relocation Act - Tenants who must relocate as a result of acquisition of their housing are entitled to Uniform Relocation Act relocation benefits, such as moving expenses, replacement housing rental payments, and relocation assistance advisory services, regardless of the owner's voluntary participation.

Ability to Pay - The North Carolina Department of Commerce has ranked the 100 counties in an economic tier system due to the Lee Quality Jobs and Business Expansion Act of 1966, which provides for a sliding scale of State tax credits for economic investment. This Act has become North Carolina's primary development tool in an effort to assist smaller rural counties become economically competitive. The most economically depressed counties are ranked in Tier 1 and the most economically prosperous are ranked in Tier 5. These rankings are evaluated annually based on (1) population growth, (2) unemployment rate, and (3) per capita income.

The tier ranking is widely used by the State as a measure of an individual county's ability to pay when applying for State and Federal grants. Cumberland County is ranked as a Tier 4 County.

Non-Government Funding

Another potential source of revenue for local mitigation efforts are the contribution of non-governmental organizations, such as churches, charities community relief funds, the American Red Cross, hospitals, for-profit businesses and non-profit organizations, such as nature conservancy and land trust organizations.

Legal Authority and Capability

The City of Fayetteville has extensive legal authority and capability to address the threats of natural hazards.

Local governments in North Carolina have been authorized by the State legislature to carry out four broad governmental powers: Regulation, Acquisition, Taxation and Spending. The following is a summary of North Carolina enabling legislation granting these broad governmental powers relevant to hazard mitigation.

Regulation

General Police Power

All local governments in North Carolina have been granted broad regulatory powers in their jurisdictions. North Carolina General Statutes [NCGS] bestow the general police power on local governments, allowing them to enact and enforce ordinances, which define, prohibit, regulate or abate acts, omissions, or conditions detrimental to the health, safety and welfare of the people and to define and abate nuisances (including public health nuisances).

Hazard mitigation can be included under the police power to protect the public health, safety and welfare, therefore counties and municipalities may include requirements for hazard mitigation in local ordinances. Local governments may also use their power to abate nuisances, which could include by local definition, any activity or condition making people or property more vulnerable to any hazard [NCGS Chapter 160A, Article 8 Delegation and Exercise of the General Police Power to Cities and Towns.

Building Codes and Building Inspection

Counties and municipalities can engage in risk reduction measures focusing on strengthening building codes and requiring retrofitting of existing structures and facilities to protect the public health, safety, and welfare in the event of a natural hazard.

North Carolina has a State mandatory building code, which applies throughout the State [NCGS 143-138 (c)]. However, local jurisdictions may adopt codes for their respective jurisdictions if approved by the State as providing ~~-a~~dequate minimum standards" [NCGS 1143-138 (e)]. Local regulations cannot be less restrictive than the State Code. Exempted from the State Code are public utility facilities other than buildings; liquefied petroleum gas and liquid fertilizer installations, and farm buildings outside municipal jurisdictions. No State permit may be required for structures under $20,000. (Note that exemptions apply only to State, not local permits).

The State legislature has also empowered municipalities to carry out building inspections. NCGS Chapter 160A, Article 19, Part 5 empower municipalities to create an Inspections Department, and enumerates its duties and responsibilities, which include enforcing State and local laws relating to the construction of buildings, installation of plumbing, electrical, heating systems, etc; building maintenance; and other matters.

Land Use

Through various land use regulatory powers, granted by the State, cities can control the amount, timing, density, and location of new development. These growth characteristics can determine the level of vulnerability of an area in the event of a natural hazard. Land use regulatory powers include power to engage in planning, enact and enforce zoning, subdivision, floodplain, and storm water and watershed ordinances.

Zoning

Zoning is the most basic tool available to control the use of land. The North Carolina General Statutes 160A-381 gives broad enabling authority for municipalities to use zoning as a planning tool. Counties may also regulate inside a municipal jurisdiction at the request of a municipality, as set forth in NCGS 160A-360(d). The statutory purpose for the grant of power is to promote the health, safety or the general welfare of the community. Land ~~-u~~ses" controlled by zoning include the type of use, such as residential, commercial, industrial, as well as minimum specifications for use such as lot size, building height, setback, density, etc.

Municipalities are authorized to divide their territorial jurisdiction into districts, and to regulate and restrict the erection, construction, reconstruction, alteration, repair or use of buildings, structures, or land within those districts [NCGS 160A-382]. Districts may include general use districts; overlay districts, and special use districts or conditional use districts. Zoning ordinances consist of maps and written text.

Comprehensive or Master Planning

Within North Carolina, local governments are required to create or designate a planning agency in order to exercise the regulatory powers related to land use [NCGS 160A-387]. The planning agency may: prepare studies for an area/neighborhood; determine objectives; prepare and adopt plans for achieving objectives; develop and recommend policies, ordinances and administrative means to implement plans; and perform other related duties [NCGS 160A-361].

NCGS 160A-383 requires that zoning regulations be made in accordance with a comprehensive plan. While the ordinance itself may provide evidence that zoning is being conducted ~~-in~~ accordance with a plan," the existence of a separate comprehensive planning document ensures that the government is developing regulations and ordinances that are consistent with the overall goals of the community.

Subdivision Regulation

Subdivision regulations control the division of land into parcels for the purpose of building a development or sale. Subdivision is defined as all divisions of a tract or parcel of land into two or more lots and all divisions involving a new street or a change in existing streets [NCGS 160A-376]. Flood-related subdivision controls typically require that developers install adequate drainage facilities and design water and sewer systems to minimize flood damage and contamination. They prohibit the subdivision of land

subject to flooding unless flood hazards are overcome through filing or other measures, and they prohibit filling of floodway areas. Subdivision regulations require that subdivision plans be approved prior to the division of land. Subdivision regulation is limited in its ability to directly affect the type of use made of land or minimum specifications for structures.

Floodplain Regulation

The North Carolina legislature passed the ~~–~~Act to Prevent Inappropriate Development in the One Hundred-Year Floodplain and to Reduce Flood Hazards" to regulate development within floodways [NCGS 143-214.51-214.61]. It serves as a risk reduction or risk elimination tool depending upon local government use. The purpose of this law is to minimize the extent of floods by preventing obstructions that inhibit water flow and increase flood height and damage; prevent and minimize loss of life, injuries, property damage and other losses in flood hazard areas; and promote the public health, safety and welfare of citizens.

The statute directs, rather than mandates, local government to designate a one hundred-year floodplain; adopt local ordinances to regulate uses in flood hazard areas; enforce those ordinances; and grant permits for use in flood hazard areas that are consistent with the ordinance. The statute established minimum standards for local ordinances and provides for variances for prohibited uses such as:

(a) A flood hazard prevention ordinance adopted by a county or city pursuant to this part shall, at a minimum:

2. Meet the requirements for participation in the National Flood Insurance Program and of this section.
3. Prohibit new solid waste disposal facilities, hazardous waste management facilities, salvage yards, and chemical storage facilities in the 100-year floodplain except as noted in section (b) below.
4. Provide that a structure or tank for chemical or fuel storage incidental to a use that is allowed under this section or to the operation of a water treatment facility may be located in a 100-year floodplain only if the structure or tank is either elevated above base flood elevation or designed to be watertight with walls substantially impermeable to the passage of water and with structural components capable of resisting hydrostatic and hydro dynamic loads and the effects of buoyancy.

(b) A flood hazard prevention ordinance may include a procedure for granting variances for uses prohibited under G.S. 143-215.54.

(c). A county or municipality shall notify the Secretary of Crime Control and Public Safety of its intention to grant a variance at least 30 days prior to granting the variance. A variance may be granted upon finding that all of the following apply:

(1) The use serves a critical need in the community.
(2) No feasible location exists for the location of the use outside the 100-year floodplain.
(3) The lowest floor of any structure is elevated above the base flood elevation or is designed to be watertight with walls substantially impermeable to the passage of water and with structural components capable of resisting hydrostatic and hydrodynamic loads and the effects of buoyancy.
(4) The use complies with all other applicable laws and regulations.

Also, the statute ensures that local ordinances meet the minimum requirements of participation in the National Flood Insurance Program (NFIP), which will afford residents the ability to purchase flood insurance through the NFIP. Additionally, communities with such ordinances will be afforded priority in the consideration of applications for loans and grants from the Clean Water Revolving Loan and Grant Fund.

Acquisition

Municipalities can eliminate the risk of hazards through their power to acquire property, either in fee or lesser interest such as an easement. This removes the property from the private marketplace, thereby eliminating or reducing the possibility of inappropriate development. North Carolina legislation empowers municipalities to acquire property for public purpose by gift, grant, devise, bequest, exchange, purchase, lease or eminent domain [NCGS Chapter; Chapter 160A Article 11].

Taxation

The power to levy taxes and special assessments has been delegated to municipalities by the North Carolina legislature [NCGS 160A Article 9]. This power allows local governments to set preferential tax rates for areas unsuitable for development, such as wetlands, thereby discouraging development in hazardous areas. Municipalities may also levy special assessments on property owners for all or part of the costs of acquiring, constructing, reconstructing, extending or otherwise building or improving beach erosion control, or flood and hurricane protection works within a designated area [NCGS 160A 238].

Spending

Municipalities have been granted power to make expenditures in the public interest by the North Carolina General Assembly. An annual budget and a Capital Improvement Plan (CIP) can include hazard mitigation efforts. A CIP serves as a schedule for providing municipal services over a specified period of time. Committing to a timetable for the extension of facilities and services, municipalities can effectively steer future growth and development and mitigate the impacts of natural hazards.

Political Climate and Political Willpower

The City of Fayetteville has a political climate that seeks to expand the City's capability to address the threats of natural hazards. The City Council has shown some political willpower to expand its capability to address the threats of natural hazards.

LIST OF REFERENCES (CITY OF FAYETTEVILLE SECTION)

Development Services Department, Planning and Zoning Division. City of Fayetteville. 1963. Existing Land Use. Fayetteville, NC. Technical Study No. 4.

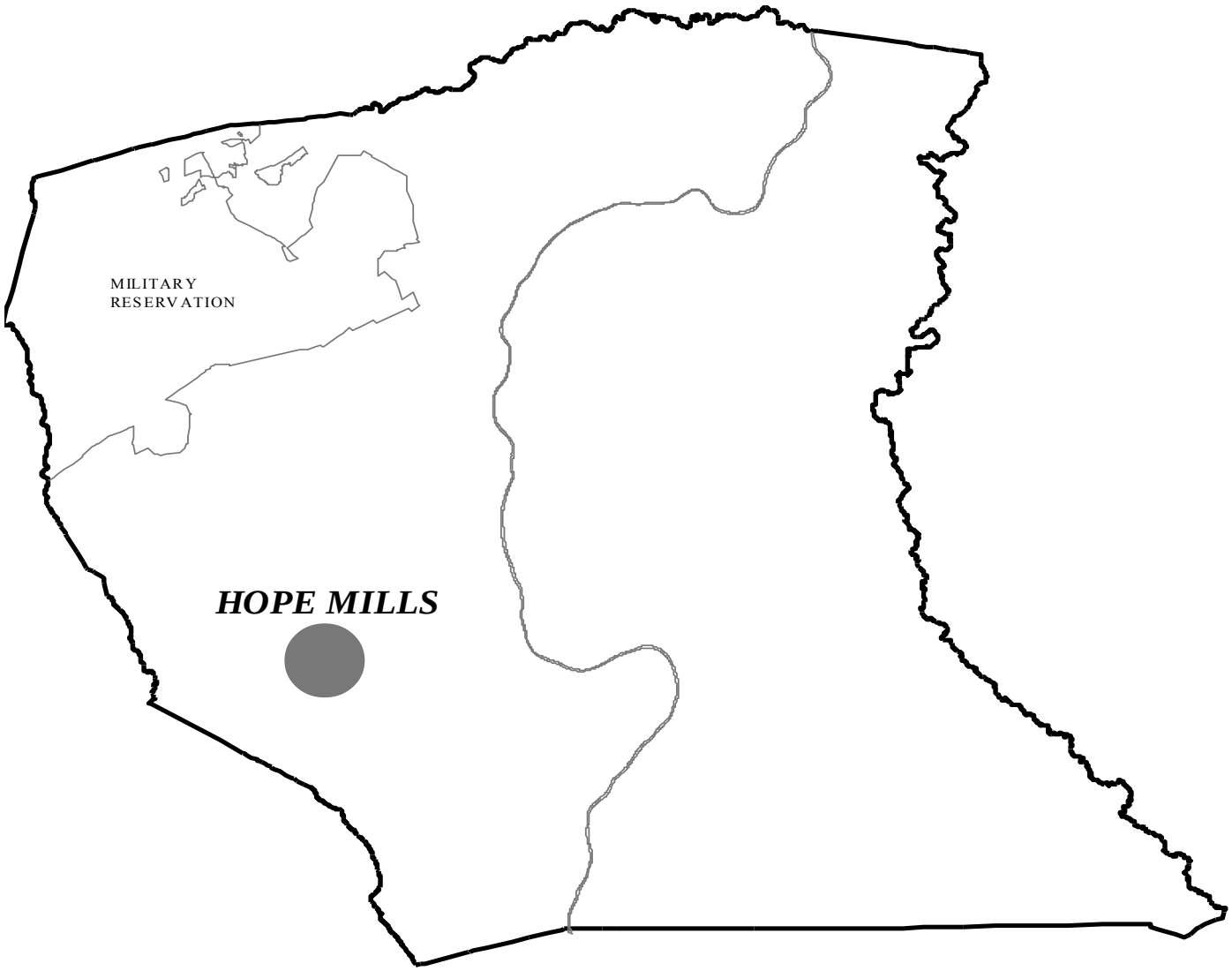
Federal Emergency Management Agency. 1984. Flood Insurance Study. City of Fayetteville, NC. Revised as of June 15, 1984.

Mason, Robert R., Jr. and Caldwell, William S. 1992. The Storm and Flood of September 15, 1989, in Fayetteville, North Carolina. U.S. Geological Survey. Water-Resources Investigations Report 92-4097.

Wilbur Smith and Associates. 1971. Comprehensive Water and Sewer Plan-Cumberland County, North Carolina.

This page left blank intentionally.

TOWN OF HOPE MILLS
HAZARD MITIGATION PLAN



TOWN OF HOPE MILLS HAZARD MITIGATION PLAN

COMMUNITY PROFILE

The Town of Hope Mills, chartered in 1891, is located along Interstate 95 south of the City of Fayetteville. Consisting of approximately 7 square miles, the Town had a 2009 estimated population of 14,559 persons according to the North Carolina State Office of Management and Budget. Physically, the Town is urban and has a significant number of water bodies within or adjacent to its borders: Hope Mills Lake, Lake Upchurch, Bones Creek, Buckhead Creek, Big Rockfish Creek, and Little Rockfish Creek. The proximity to these water bodies was conducive for power generation, saw, grist and cotton mills. The Town has evolved from a mill village into a town with a number of park and recreation facilities, five shopping centers two medical clinics, four elementary schools, two middle schools, two high schools, and twenty churches. The Wal-Mart Distribution Center, a major employer within the County, is located near the Town. Education, wholesale and retail trade and private industry are ranking employment categories. Hope Mills has a Manager-Council form of government, which consists of a mayor and five commissioners. The Town Manager is the chief administrative officer in charge of nine departments. The Towns Departments include Fire, Police, Finance, Building Inspections, Parks & Recreation, Buildings & Grounds, Public Works, and Streets. In 2007, the Town rejoined the Cumberland County Joint Planning Board and contracts with it for all its planning services.

IDENTIFYING AND PROFILING HAZARDS

For this update the Technical Committee reviewed Table **A1 – Hazard Identification and Analysis and Table A2 – Summary by Hazard Vulnerability by Jurisdiction**. The Technical Committee determined the following hazards could still affect the Town of Hope Mills: hurricanes, droughts, thunderstorms, severe winter storms, tornadoes, extreme heat, wildfires, and earthquakes. Additionally, the Technical Committee focused on flooding since it is associated with and caused by other types of hazards, such as thunderstorms, hurricanes and tornadoes. Between January 1950 and June 2010, the Town of Hope Mills has experienced eight hurricanes, 12 powerful thunderstorms, two tornado, 12 hailstorms, six flash floods, one drought, 14 winter storms, and two extreme heat event per NOAA history profile of Local Storm Events. Wildfires and earthquakes have not been documented within the Town. It is highly likely that thunderstorms and extreme heat events will occur in the future. Additionally, it is likely that Hope Mills will experience hurricanes, tornadoes, droughts, and severe winter storms. Flooding, earthquakes and wildfires are possible. Detailed information on each hazard type and their profile are contained within Appendix A - Hazard Profile. Information within the hazard profile includes a location of the geographic area affected by each natural hazard, historical impact of each hazard, including previous occurrences and extent of impact relative to Hope Mills.

MITIGATION STRATEGIES AND POLICIES

Town of Hope Mills adopted three (3) goals to be achieved by the Hope Mills Hazard Mitigation Plan. These goals serve as a basis for a more specific plan of action. The following goals are broad policy statements aimed at guiding and directing future activity so that persons, property, government, and infrastructure are protected from the impacts of the natural hazards that affect Hope Mills.

GOAL #1

Reduce vulnerability of Cumberland County and its municipalities to all natural hazards for existing development, future development, redevelopment and infrastructure.

GOAL#2

Identify and protect all properties/natural resources that are at risk of damage due to a hazard and to undertake cost-effective mitigation measures to minimize losses.

GOAL#3

Improve public awareness, education and outreach programs for the natural hazards that Cumberland County and its municipalities are most likely to experience.

In the following pages, mitigation actions for Hope Mills are listed and will identify the following for each action:

- Hazard targeted – *Hazard the action is targeted to mitigate.*
- Goals addressed – *Goal(s) the action will address.*
- Document reference – *Ordinance(s), Policies or Programs that the action references, if any.*
- Whether it would be a new policy or continuation or an amendment to an existing policy
- Priority – *Each action ranked in terms of overall importance (high, moderate or low). Priorities were based upon the following criteria: cost-benefit, hazard identification and profile, vulnerability and capability assessments, and mitigation goals.*
- Funding sources – *List of funding source or potential funding source*
- How the action will mitigate the hazard
- How the action will reduce overall vulnerability
- Will the action be:
  Cost effective – *Is a measure of how well the cost achieves the intended action.*
  Environmentally Sound – *Is a determination if technology exists within the financial means of the jurisdictions that can achieve an action.*
  Technically feasible *The actions has minimal or no harm to nature or the environment.*
- On-going, Short-term or Long-term Implementation - *On-going actions are those that currently exist and should be continued. Short-term actions are those that can be implemented within existing resources and should be accomplished within a time frame of six (6) months to two (2) years. Long-term actions will take additional resources or authorities and should be organized to begin implementation within a time frame of 3-5 years.*
- Person(s) or department responsible for the action – *Person(s) or Department(s) responsible for implementing the action.*
- Benchmark and indicator of progress – *Explains what needs to be accomplishment to meet this action.*
- Update – *Explains what has or has not been done to this action.*

The Hazard Mitigation Technical Committee looked at all the actions from the original Plan and the Update Plan and considered the jurisdiction's cost of the action to be taken and their cost if no action is taken. In most cases it was determined that it was far less costly for the jurisdictions to take preventive action whenever possible than wait until a hazard occurred, therefore most of the actions taken are more preventive in nature. Most of the jurisdictions have limited financial resources to establish capital projects

that address existing facilities vulnerable to the various hazards, such as relocating, removing, purchasing vulnerable properties; providing public water, or placing electrical lines underground. The Hazard Mitigation Technical Committee determined that flooding was the most likely hazard to occur based on past records. Most of the past damage occurred on properties located in the Special Flood Hazard Area. Many of these properties are aged and through attrition and general decay will eventually be removed from the hazardous area. Preventive measures will keep new structures from being built in these areas.

ACTION 1: ***Restrict Residential And Non-Compatible Uses Within The 100-Year Floodplain.***

Hazard Targeted	Flood
Goals Addressed	1; 2
Document Reference, if applicable	Hope Mills Zoning Ordinance
New, Continuation, Amendment	Completed October 20, 2008
Priority	High
Funding	Not Applicable

How the Action Will:

Mitigate the Hazard	Prohibit developing with the special flood hazard area and promote the floodplain as an environmental corridor and open space area.
Reduce Overall Vulnerability	Eliminate vulnerable type of developments within the flood hazard area thus lessen the losses during a flood.

Will the Action Be:

Cost Effective	Yes
Environmentally Sound	Yes
Technically Feasible	Yes

On-going, Short-term, Long-term Implementation	Short-term
Person(s) or Department Responsible	Cumberland County Planning Department
Benchmark and Indicator Of Progress	Town of Hope Mills revised Zoning Ordinance adopted October 20, 2008 includes the zoning classification of CD (Conservancy District). This district is design to preserve and protect identifiable natural resources which includes the Special Flood Hazard Area.

ACTION 2: ***Increase The Lowest Floor Elevation To 2 Feet Above The Base Flood Elevation*.**

Hazard Targeted	Flood
Goals Addressed	1; 2
Document Reference, if applicable	Hope Mills Flood Damage Prevention Ordinance
New, Continuation, Amendment	Completed January 5, 2007
Priority	High
Funding	Not Applicable

How the Action Will:

Mitigate the Hazard	Require new developments to be elevated to a higher elevation than what is currently required.
Reduce Overall Vulnerability	Reduce the vulnerability of existing and redevelopment projects because they would be required to meet the new elevation, if substantial improvements are made.

Will the Action Be:

Cost Effective	Yes
Environmentally Sound	Yes
Technically Feasible	Yes

On-going, Short-term, Long-term Implementation	Short-term
Person(s) or Department Responsible	Cumberland County Planning Department
Benchmark and Indicator Of Progress	Adopted revised Hope Mills Flood Damage Prevention ordinance on January 5, 2007 that requires the lowest floor elevation be 2 feet above base flood elevation (Section 42-60 ~~R~~Regulatory Flood Protection Elevation").

ACTION 3: ***Encourage The Use Of Cluster Type Development To Preserve Special Hazard Areas.***

Hazard Targeted	Flood
Goals Addressed	1; 2
Document Reference, if applicable	Hope Mills Subdivision Ordinance (Zero Lot Line Development)
New, Continuation, Amendment	Completed on October 19, 2009
Priority	High
Funding	Not Applicable

How the Action Will:

Mitigate the Hazard	Preserve the special flood hazard area, while allowing property to be developed to it potential density.
Reduce Overall Vulnerability	Eliminate developments within the special flood hazard area.

Will the Action Be:

Cost Effective	Yes
Environmentally Sound	Yes
Technically Feasible	Yes

On-going, Short-term, Long-term Implementation	On-going
Person(s) or Department Responsible	Cumberland County Planning Department
Benchmark and Indicator Of Progress	Town of Hope Mills Subdivision Ordinance allows Zero Lot Line Developments within the Town which allows property to be developed to it potential density while preserving the Special Flood Hazard Area.

ACTION 4: ***Provide Incentives For Developers Willing To Use Environmentally Friendly Development Practices (Such As Preserving Open Space, Landscaping With Native Vegetation, Providing Abundance Of Trees And Reduction Of Environmental Impact).***

Hazard Targeted	Flood, Extreme Heat
Goals Addressed	1; 2
Document Reference, if applicable	Hope Mills Subdivision Ordinance
New, Continuation, Amendment	Completed on October 20, 2008 and October 19, 2009
Priority	Low
Funding	Not applicable
How the Action Will:	
Mitigate the Hazard	Amount of vegetation would reduce flooding (less impervious surface) and provide shade to help shield from extreme heat.
Reduce Overall Vulnerability	Reduce flooding and exposure to extreme heat.
Will the Action Be:	
Cost Effective	Yes
Environmentally Sound	Yes
Technically Feasible	Yes
On-going, Short-term, Long-term Implementation	Long-term
Person(s) or Department Responsible	Cumberland County Planning Department
Benchmark and Indicator Of Progress	Town of Hope Mills has regulations in their Zoning and Subdivision Ordinances that permit environmentally friendly type developments. These requirements included Density Developments-Conditional Use District, Zero Lot Line Developments, and Planned Neighborhood Developments-Conditional Use District. Also their ordinances include landscaping and tree preservation requirements for developments. Currently the Town has one environmentally friendly subdivision under construction.

ACTION 6: ***Develop Uniform Flood Damage Preventive Ordinance.***

Hazard Targeted	Flood
Goals Addressed	1
Document Reference, if applicable	Cumberland County, City of Fayetteville, Town of Hope Mills and Town of Spring Lake Flood Damage Prevention Ordinances
New, Continuation, Amendment	Deletion of this action
Priority	Medium
Funding	Not applicable

How the Action Will:

Mitigate the Hazard	Not applicable
Reduce Overall Vulnerability	Not applicable

Will the Action Be:

Cost Effective	Yes
Environmentally Sound	Yes
Technically Feasible	Yes

On-going, Short-term, Long-term Implementation	Long-term
Person(s) or Department Responsible	Cumberland County Planning Department
Benchmark and Indicator Of Progress	Even though the Cumberland County, City of Fayetteville and the Towns of Hope Mills and Spring Lake Flood Damage Prevention Ordinances are largely the same now, each of these jurisdictions preferred to maintain and enforce their own Flood Damage Prevention Ordinance. Also Cumberland County participated in the Community Rating System (CRS) whereas the City of Fayetteville and Towns of Hope Mills and Spring Lake at this time do not participate. The Technical Committee recommends that this action be deleted from the Town‘s actions.

ACTION 7: ***Revised Subdivision Ordinance To Require That All Utilities Be Placed Underground With The Exception Of High Voltage Electrical Transmission Lines.***

Hazard Targeted	Multi-hazard (Flooding, Hurricanes, Tornadoes, Thunderstorms and Winter Storms)
Goals Addressed	1; 2
Document Reference, if applicable	Hope Mills Subdivision Ordinance
New, Continuation, Amendment	Completed on October 19, 2009
Priority	Medium
Funding	Not Applicable

How the Action Will:

Mitigate the Hazard	Reduce the overall impact of loss utility services.
Reduce Overall Vulnerability	Reduce damage cost, loss of service, and eliminate life-threatening situations to citizens and utility companies.

Will the Action Be:

Cost Effective	Yes
Environmentally Sound	Yes
Technically Feasible	Yes

On-going, Short-term, Long-term Implementation	Short-term
Person(s) or Department Responsible	All Electrical providers that serve the Town
Benchmark and Indicator Of Progress	Town of Hope Mills Subdivision Ordinance requires that ~~–~~All developments have utilities placed underground where practical, except high voltage electrical lines." Mapping of these utilities is the responsibility of the electrical providers.

ACTION 8: ***Develop A Program To Identify And Eliminate Existing Development That Is Below The Special Flood Hazard Elevation.***

Hazard Targeted	Flood
Goals Addressed	1; 2
Document Reference, if applicable	Not applicable
New, Continuation, Amendment	Continuation
Priority	Moderate
Funding	Cumberland County Community Development (HUD Funds) Hope Mills General Fund

How the Action Will:

Mitigate the Hazard	The program will assist in the identification of those residents that are located in repeating flood prone areas. Also it will develop a process that will assist in relocating those residents to a safer area.
Reduce Overall Vulnerability	Eliminate all structures that are prone to flooding.

Will the Action Be:

Cost Effective	Yes
Environmentally Sound	Yes
Technically Feasible	Yes

On-going, Short-term, Long-term Implementation	Long-term
Person(s) or Department Responsible	Town of Hope Mills, Cumberland County Planning Department and Cumberland County Community Development
Benchmark and Indicator Of Progress	This information is provided to the Town of Hope Mills through NFIP and currently there are no buildings located below the Special Flood Hazard Area. This information will be monitored by the Town of Hope Mills Building & Inspections Department for the Town.

ACTION 9: ***Develop A Program To Ensure Drainage Ways, Culverts And Storm Drains Are Free Of Debris.***

Hazard Targeted	Flood
Goals Addressed	1; 2
Document Reference, if applicable	
New, Continuation, Amendment	Complete
Priority	High
Funding	Stormwater Fund

How the Action Will:

Mitigate the Hazard	Regular maintenance of debris from drain ways, culverts and storm drains would provide the proper flow of water and reduce flooding.
Reduce Overall Vulnerability	Reduce vulnerability of flooding to streets, structures, and land located along drain ways, culverts and storm drains.

Will the Action Be:

Cost Effective	Yes
Environmentally Sound	Yes
Technically Feasible	Yes

On-going, Short-term, Long-term Implementation	Long-term
Person(s) or Department Responsible	Public Works, Street, Parks and Recreation, Building and Grounds Departments and Department of Transportation
Benchmark and Indicator Of Progress	This is accomplished periodically through the Town of Hope Mills Public Works Department and North Carolina Department of Transportation.

ACTION 10: ***Adopt A Comprehensive Countywide Stormwater Ordinance.***

Hazard Targeted	Flooding
Goals Addressed	1; 2
Document Reference, if applicable	
New, Continuation, Amendment	Delete
Priority	Moderate
Funding	Not Applicable

How the Action Will:

Mitigate the Hazard	Provide better control of water runoff from new developments.
Reduce Overall Vulnerability	Reduce vulnerability of flooding to streets, structures, and land located along drain ways, culverts and storm drains.

Will the Action Be:

Cost Effective	Yes
Environmentally Sound	Yes
Technically Feasible	Yes

On-going, Short-term, Long-term Implementation	Long-term
Person(s) or Department Responsible	Cumberland County Planning Department
Benchmark and Indicator Of Progress	The Town of Hope Mills has their own Stormwater Department that enforces Phase I and Phase II of their Stormwater Ordinance. Enforcement of Stormwater Regulations for the Unincorporated Area and other small Towns within Cumberland County is the responsibility of NC DENR; and City of Fayetteville and Spring Lake have their own enforcement and ordinances for their jurisdictions.

ACTION 11: ***Limit The Amount Of Impervious Surfaces And Encourage The Use Of Pervious Type Surfaces.***

Hazard Targeted	Flood
Goals Addressed	1
Document Reference, if applicable	Hope Mills Zoning Ordinance and Hope Mills Subdivision Ordinance
New, Continuation, Amendment	Completed October 19, 2009 and October 20, 2008
Priority	High
Funding	Not applicable

How the Action Will:

Mitigate the Hazard	Will limit the amount of impervious surface, which would reduce runoff and flooding.
Reduce Overall Vulnerability	Reduce vulnerability to existing and future development.

Will the Action Be:

Cost Effective	Yes
Environmentally Sound	Yes
Technically Feasible	Yes

On-going, Short-term, Long-term Implementation	Long-term
Person(s) or Department Responsible	Cumberland County Planning Department
Benchmark and Indicator Of Progress	The Town of Hope Mills has requirements that limit the amount of impervious surfaces in developments. They included buffer, tree preservation and landscaping requirements for all developments.

ACTION 12: ***Develop A Landscape Ordinance That Will Encourage Protection To Natural Areas Through Design And Provide More Vegetation In Urban Development.***

Hazard Targeted	Flood, Extreme Heat
Goals Addressed	1; 2
Document Reference, if applicable	Hope Mills Zoning Ordinance
New, Continuation, Amendment	Completed on October 20, 2008
Priority	Moderate
Funding	Not applicable

How the Action Will:

Mitigate the Hazard	Provide more pervious area for natural drainage and provide reduction in extreme heat.
Reduce Overall Vulnerability	Reduce the vulnerability to localized flooding and extreme heat.

Will the Action Be:

Cost Effective	Yes
Environmentally Sound	Yes
Technically Feasible	Yes

On-going, Short-term, Long-term Implementation	Long-term
Person(s) or Department Responsible	Cumberland County Planning Department
Benchmark and Indicator Of Progress	Town of Hope Mills adopted October 8, 2008 zoning requirements that requires landscaping for non-residential, mix use developments and off street parking areas. Also the Town adopted requirements for tree preservation in all developments.